Reference data on expansion in pipe lines

and the application of ADSCO EXPANSION DEVICES

Helpful Information and Data on Expansion in Pipe Lines which are subjected to varying temperatures

in conveying

STEAM · WATER · OIL
AIR · GASES · LIQUIDS

BULLETIN NO. 201

AMERICAN DISTRICT STEAM COMPANY
GENERAL OFFICES AND WORKS
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File this book under EXPANSION

THE purpose of this book is twofold.

First, it supplies a quick and convenient method for engineers and users of pipe lines to compute the amount of expansion due to varying temperatures.

Second, it presents the complete line of expansion devices which our engineers have developed to meet these conditions.

The tables on the next page have been carefully worked out, so that it requires but a moment's calculation to arrive at the information desired.

The contents of the entire book have been selected and arranged in the logical order which our experience of forty-nine years in the manufacture, installation, and maintenance of expansion devices suggests as the most helpful to engineers and users of pipe lines.

Only information of value has been included. Non-essentials have been eliminated. It is a practical working book.

We suggest that you place this book in your files, under "EXPANSION," where it will be at your immediate service when needed.

AMERICAN DISTRICT STEAM COMPANY

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How to determine the amount of expansion in pipe lines

The linear expansion of any length of pipe is determined by calculating the difference between minimum surrounding temperature and the highest temperature of steam, gases, or liquids to be conveyed through the pipe.

The table below shows the expansion in 100 feet of pipe at various temperature differences.

Divide by 100 to arrive at expansion per foot, then multiply by the number of feet of pipe for which expansion is to be figured.

The steam table at bottom of page gives temperatures at various steam pressures.

Inches of linear expansion in 100 feet of pipe

Temperature Difference Degree F.	Wrought Iron	Steel	Cast Iron	Copper and Brass	Temperature Difference Degree F.	Wrought Iron	Steel	Cast Iron	Copper and Brass
0	.00	.00	.00	.00	325	2.86	2.73	2.60	4.13
10	.08	.08	.05	.13	350	3.08	2.94	2.80	4.45
20	.15	.15	.10	.25	375	3.46	3.31	3.15	5.01
30	.23	.23	.15	.35	400	3.63	3.46	3.30	5.24
40	.30	.30	.25	.45	425	4.05	3.86	3.68	5.85
50	.40	.38	.36	.57	450	4.28	4.08	3.89	6.18
100	.79	.76	.72	1.14	475	4.62	4.41	4.20	6.68
125	.97	.92	.88	1.40	500	4.90	4.67	4.45	7.06
150	1.21	1.15	1.10	1.75	525	5.22	4.99	4.75	7.55
175	1.41	1.34	1.28	2.04	550	5.55	5.30	5.05	8.03
200	1.65	1.57	1.50	2.38	600	6.26	5.98	5.70	9.06
225	1.87	1.78	1.70	2.70	650	7.05	6.71	6.40	10.18
250	2.09	1.99	1.90	3.02	700	7.86	7.50	7.15	11.37
275	2.36	2.26	2.15	3.42	750	8.75	8.36	7.96	12.66
300	2.58	2.47	2.35	3.74	800	9.76	9.31	8.87	14.10

Example:

80 feet of wrought-iron pipe

Maximum steam temperature . . .	338°
Minimum surrounding temperature .	40°
Maximum temperature difference . .	298°

Expansion in 100 ft. = 2.58 in.

Expansion in 80 ft. = $\frac{2.58 \times 80}{100}$ = 2.064 ins.

Selecting ADSCO Expansion Joints with correct amount of traverse: First determine the exact amount of expansion in the pipe line between anchored points, making allowance for possible future increase in temperature, and specify the traverse nearest to, but in excess of, the amount of expansion figured.

Steam Table

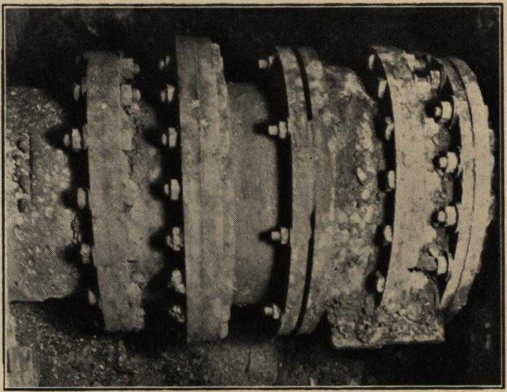
Properties of saturated steam

Gauge Pressure	Absolute Pressure	Temperature Degree F.	Cu. Ft. Volume of 1-lb. Steam	Weight of 1 Cu. Ft. Steam	Gauge Pressure	Absolute Pressure	Temperature Degree F.	Cu. Ft. Volume of 1-lb. Steam	Weight of 1 Cu. Ft. Steam
Vacuum In. Mer.					Pounds Pressure				
17.70	6	170.06	61.89	.01616	25.3	40	267.3	10.49	.0953
13.63	8	182.86	47.27	.02115	30.3	45	274.5	9.39	.1065
9.56	10	193.22	38.38	.02606	35.3	50	281.0	8.51	.1175
5.49	12	201.96	32.36	.03090	40.3	55	287.1	7.78	.1285
1.42	14	209.55	28.02	.03569	45.3	60	292.7	7.17	.1394
Pounds Pressure					50.3	65	298.	6.65	.1503
					60.3	75	307.6	5.81	.1721
1.3	16	216.3	24.79	.04042	70.3	85	316.3	5.16	.1937
2.3	17	219.4	23.38	.04277	80.3	95	324.1	4.65	.2151
3.3	18	222.4	22.16	.04512	91.3	106	332.0	4.192	.2336
4.3	19	225.2	21.07	.04746	101.3	116	338.7	3.848	.2599
5.3	20	228.	20.08	.04980	125.3	140	353.1	3.219	.3107
6.3	21	230.6	19.18	.05213	151.3	166	366.5	2.737	.3654
7.3	22	233.1	18.37	.05445	200.3	215	388.0	2.138	.468
8.3	23	235.5	17.62	.05676	255.3	270	407.9	1.718	.582
9.3	24	237.8	16.93	.05907	305.3	320	423.4	1.456	.687
10.3	25	240.1	16.30	.0614	355.3	370	437.2	1.264	.791
15.3	30	250.3	13.74	.0728	435.3	450	456.5	1.04	.96
20.3	35	259.3	11.89	.0841	535.3	550	477.3	.83	1.20

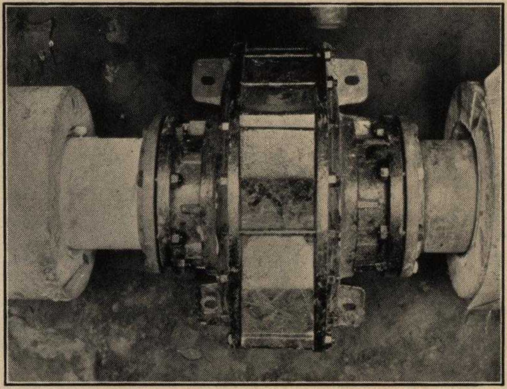
Superheated steam: A simple way to find the temperature of superheated steam is to take the temperature of saturated steam at comparable pressure and add total degrees F. of superheat—e. g., 200 lbs. pressure and 100° superheat equal 388° + 100° superheat = 488° total temperature.

Expansion and Contraction must be absorbed

An 18-inch Adsco Slip-Type Expansion Joint in operation at Peoria, Ill., continuously since 1902. The photograph was taken in March, 1926. So far, the joint has never leaked nor been repacked. Contrary to the belief of some engineers, packed joints do not require constant attention. Adsco Expansion Joints have proven this by their many years of operation without leaking or being repacked.



An Adsco Packless Expansion Joint (Variator) installed in an underground steam line in Myrtle Street, Erie, Pa., in 1898. Photographed in 1925, when a larger-size steam line was installed. The Variator is now installed in another line.



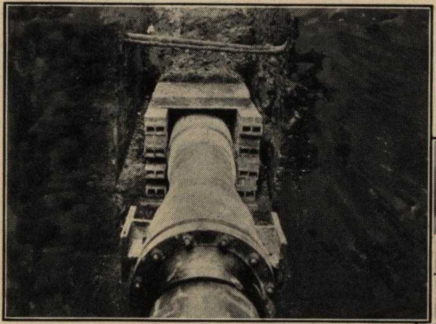
In every pipe line, provision must be made for the expansion and contraction due to either the variable temperature of gases or liquids conveyed through the line or the changeable air temperature around the pipe. Many pipe line breaks, which are costly to repair and also cause expensive delays, are the direct result of failure to install a proper fitting to absorb the expansion and contraction.

Adsco Expansion Joints prevent such breaks. Thousands of them are giving efficient service in underground, surface and overhead lines, as well as in masses of interior piping.

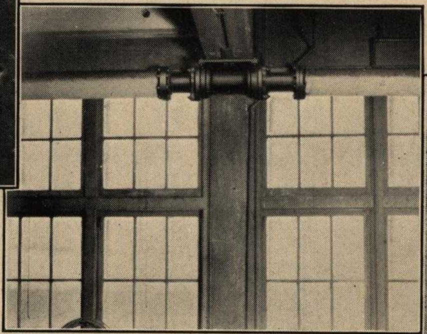
The durability and efficiency of Adsco Expansion Devices are well expressed in the two illustrations at the left. Besides resisting the destructive elements in the ground, these fittings have kept the pipe lines free from expansion trouble at absolutely no maintenance cost.

These two installations are no exception to the performance of Adsco Expansion Devices. Some of the first expansion joints we manufactured are still in operation—a credit to the care given in designing and manufacturing these fittings, and the best guarantee of quality, durability, and economy to the purchaser of Adsco Expansion Devices.

Some Applications of ADSCO Expansion Devices

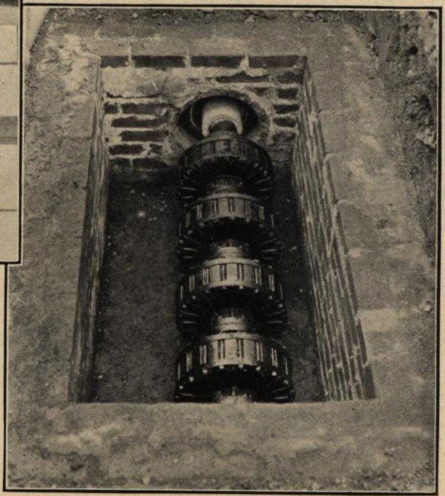


An Adsco Duplex-Sleeve-Guided Type Joint welded into a line carrying steam at 250 pounds pressure with 100° superheat. The air-cooled slip prolongs the life of the packing. Many of these joints are used in oil lines.



This Adsco Double Slip Type Expansion Joint, anchored to the ceiling beam, takes up the expansion and contraction in the steam line in a manufacturing plant. The joint was installed in 1911; to date it has not been repacked.

Four Adsco Packless-Type Expansion Joints (Variators) installed in tandem in an underground steam line. This joint does not require packing.



Correct installation of ADSCO Expansion Devices means years of satisfactory service

If the few simple rules given below are followed when ADSCO Expansion Devices are placed in the pipe line, the installation time is reduced and satisfactory operation is assured.

1 Be sure the pipe line is in perfect alignment before expansion device is installed. If convenient, temporarily bolt the pipe flanges together and lay a section of pipe, then pull the section away from flange to make space for the expansion device.

2 Before installing the expansion device, be sure that the slip is in alignment with the body. When ADSCO Slip-Type Expansion Joints are packed in our own factory they are fitted with wooden blocks which hold the slip in the exact position in which it should be placed in a cold pipe line. See that the flange on the slip bears tightly on all the blocks, which assures a correct position of the slip. Leave the blocks wired to the slip until the line is ready for test, then remove *all* these wooden blocks.

3 When anchoring the expansion device, make sure that the slip is not distorted.

4 On steep slopes, anchor the pipe at the bottom end and place the expansion device at the upper end; this relieves the anchor fitting of a pulling strain.

5 ADSCO Expansion Devices are constructed to allow full traverse as specified. The slip should not be pulled out farther than specified in face-to-face dimensions.

6 After steam is turned into the line the packing-gland bolts should be given about two turns each, and this repeated at intervals of a few days until packing is set. This will adjust the packing, so that an absolutely tight joint is assured. Be sure that gland bolts are drawn up *equally* at all times.

Packing

As the packing is of great importance for satisfactory operation of an expansion joint, we have made careful investigation of many types of commercial and special packing for various service conditions. We have found that properly proportioned stuffing boxes are likewise most necessary for the best service from any packing, and have designed every ADSCO Expansion Joint with a stuffing box of such proportions as we have found from experience to give best results.

Often, a purchaser prefers to pack an expansion joint on the job. We supply ADSCO Expansion Joints either packed or unpacked. We can furnish the type of packing preferred or, if left to our own discretion, we select a packing which from experience we have found to be suitable for the service condition under which the expansion joint is to operate.

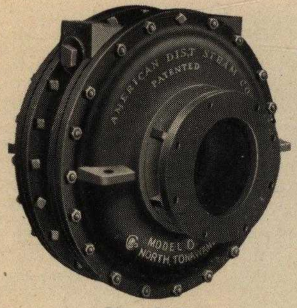
When packing a joint in our plant, the packing space is completely filled and the packing tightly compressed. An additional packing is then inserted, so that when the joint leaves our plant it is ready for installation.

Unless otherwise ordered, all ADSCO Expansion Joints are shipped unpacked. If joints are to be packed at our factory, and if packing is to be selected by us, be sure to specify the pressure and service under which joints are to operate. While we use our best judgment in the selection of packing, and exercise great care in packing the joint, we do not guarantee packing.

Traverse of ADSCO Expansion Device

While we do not recommend too close figuring, our customers are absolutely assured that the full amount of traverse as specified is available in every ADSCO Expansion Device.

For working steam pressure up to 125 pounds



No. O-1

ADSCO Double Variator Model O

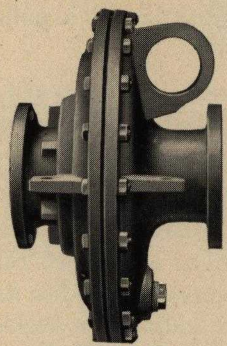
For pressure up to 50 pounds.

Total traverse, 2 3/4 ins.

Takes care of 120 feet of pipe at 50 pounds pressure.

Has service outlets at top.

Furnished complete with anchorage saddles.



No. O-2

ADSCO Single Variator Model O

For pressure up to 50 pounds.

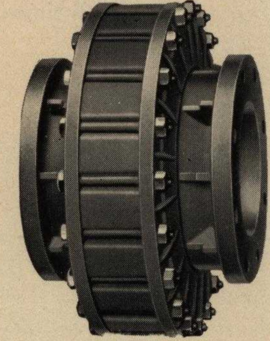
Total traverse, 1 3/8 ins.

Takes care of 60 feet of pipe at 50 pounds pressure.

Has service outlets at top.

Furnished complete with anchorage saddles.

Is tapped at bottom for drip.



No. P-1

ADSCO Double Variator Model P

For pressure up to 125 pounds.

Total traverse, 2 ins.

Not furnished with service outlets nor anchorage.

For saturated steam, air, and gases which do not attack copper or iron VARIATORS do not require packing.

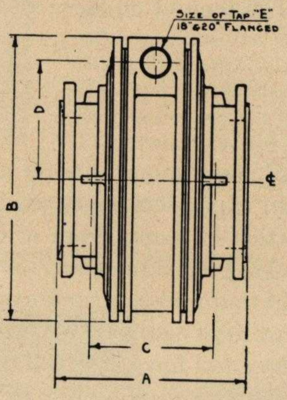
Specifications

1 The Model O Adsco Variator is manufactured with both single and double slip. The body and all outside parts are cast iron. The diaphragms are made of sheet copper specially annealed as explained on page 7. The backing plates are punched from steel plates.

This Variator is extensively used for underground steam line work. It provides outlets to which service lines to consumers' heating systems are connected. The Single Variator is tapped at the bottom, so that the steam line may be dripped through this outlet.

Flanges are faced and drilled A.S.M.E. Standard for 125-lb. pressure.

2 Model P Variator is of similar construction as the Model O, using the same metal. The main difference is its smaller diameter and lighter weight and that it is not provided with anchor or service outlets. It is manufactured in the double type only. It floats in the pipe line. It is used in both underground work and interior piping. Limit stops assure an equal travel of both slips. Flanges are faced and drilled A.S.M.E. Standard for 125-lb. pressure.



3 **When ordering**, specify size and the model required. The heavy-face type opposite the Variator is the correct identification to put on your order.

List Price

Size Inches	Model O Double	Model O Single	Model P
3	$104.00	$ 75.60	
4	125.00	93.20	$ 95.00
5	150.00	115.90	
6	183.30	151.20	125.00
7	226.90	184.00	
8	266.60	207.90	166.60
9	308.20	241.90	
10	349.80	283.50	225.00
12	408.20	342.70	274.80
14	491.40	403.20	350.00
15	562.00	441.00	
16	600.00	472.50	433.20
18	749.70	567.00	524.60
20	916.30	674.10	666.40

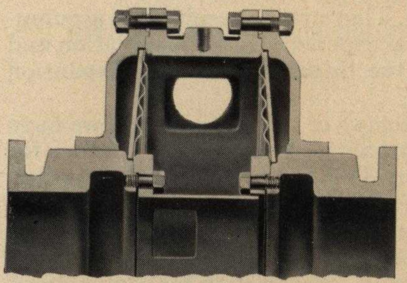
Prices include anchors and bolts for Model O Variators.

Dimensions and Weights (all dimensions are given in inches)

Size	Model O—Double						Model O—Single						Model P			
	A	B	C	D	E	Wgt.	A	B	C	D	E	Wgt.	A	B	C	Wgt.
3	17 1/2	21 3/8	10 3/8	7 5/8	2	294	14 1/16	21 3/8	7 3/8	6 5/8	3	210				
4	19 5/16	22 1/4	11 3/4	8 1/4	2 1/2	348	15 7/16	22 1/4	7 3/8	7	3 1/2	240	11 3/8	15 1/4	5 5/8	149
5	20	24	13 1/8	8 1/4	3	450	15 15/16	24	7 3/8	7 3/4	3 1/2	288				
6	20 1/4	25 1/4	13 1/8	9 1/4	3	503	15 7/16	25 1/4	7 7/8	8 1/2	4	327	12	17 3/4	5 7/8	227
7	21 1/4	26 3/8	13 1/8	9 3/4	3	562	17 3/16	26 3/8	7 7/8	9 1/8	4	386				
8	20 1/2	27 1/2	13 1/4	10	3	620	16 9/16	27 1/2	7 7/8	10	4	432	12 1/2	20	6 1/8	297
9	21 3/8	29 3/8	13 1/4	10 5/8	3 1/2		16 5/8	29 3/8	7 7/8	10 1/4	4					
10	21 3/4	29 7/8	14 1/8	11 1/2	4	778	17 11/16	29 7/8	8 3/8	10 7/8	4	550	12 15/16	22 1/2	6 3/16	389
12	22 1/4	32	14 1/8	12 1/2	4	940	19 7/16	32	8 3/8	11 1/4	4 1/2	706	13 1/8	24 3/4	6 3/8	
14	23 5/8	34 3/8	15 1/8	14 1/4	4 1/2	1138	19 15/16	34 3/8	8 3/8	12 1/4	4 1/2	782	13 7/8	27	6 5/8	577
15	24 7/16	35 1/4	15 1/8	14 3/8	5		20 1/16	35 1/4	8 3/8	12	4 1/2	886				
16	24 3/16	36 1/4	16 1/4	11 1/2	5	1370	19 7/8	36 1/4	9 1/4	13 1/4	4 1/2	951	14 1/8	29	6 3/4	697
18	25 3/4	38 1/4	17	12 1/4	6	1444	21 13/16	38 1/4	9 1/4	14 1/8	5	1084	14 7/8	31	6 3/4	
20	25 13/16	40 1/4	17	12 7/8	6	1640	23 5/8	40 1/4	10 1/2	13 1/2	5	1264	14 7/8	33	6 3/4	

Weights of Model O Variators do not include anchors, see page 7.

Construction details, installation directions, and parts



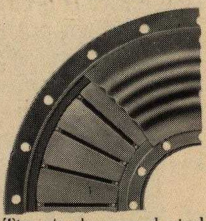
Note the thimble arrangement to prevent sediment from dropping into the bottom of the **Variator** thus preventing the free movement of the diaphragms.

Construction Details

The illustration at the left shows an interior view of the Model O Double Variator.

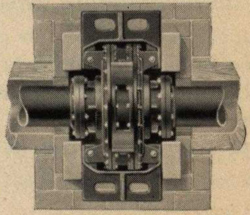
Note how the steel backing plates are placed back of the diaphragm to relieve the latter of all pressure strain. Further detail of these backing plates is shown in the drawing at the right. The plates are placed closely together and held in position by brass pins. The diaphragms are annealed by a special process while they are corrugated. It is this special annealing which gives the diaphragms extreme flexibility and longevity.

The surface of the diaphragm is so large in proportion to the movement caused by the expansion and contraction, that the strain at any one point is negligible. Observe also, that the diaphragm is at an angle when the slip is in an open or outward position, thus permitting an equal travel to each side of a straight line and avoiding the stretching of the diaphragm. This principle is largely responsible for the fact that only $\frac{1}{10}$ of one per cent of Variators installed since 1904 have been repaired.



The closely-spaced steel backing plates relieve the diaphragms from all pressure strain.

Installation Directions



The pipe should be in true alignment, to prevent buckling at the Variator. The Model O Double Variator should not be used at a point where the grade breaks in the pipe line. The Model O Single, however, may be used at such a point, the grade being broken on the side opposite to the moving slip. The Model O should be rigidly anchored.

Adsco Variators are fitted with wood blocks when they are shipped. These hold the slips in the exact position in which they should be when installed in the cold pipe line. After the Variator is installed, these blocks must be removed.

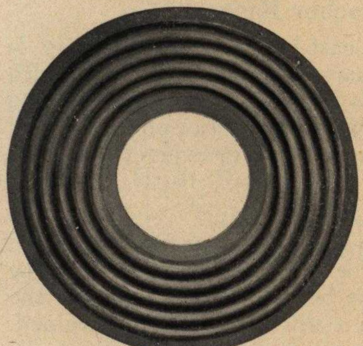
For breaking grade in a pipe line, the Adsco Adjustable Annular Wedge placed between the flanges will give any angle up to 10°.

Variator Parts

Corrugated Copper Diaphragms—List Price and Dimensions

Size of Variator	Models L, M, O Variators			Previous to Model L			Model P Variators		
	I. D.	O. D.	List Price	I. D.	O. D.	List Price	I. D.	O. D	List Price
3	4 29/32	19 1/8	10.00	4 11/16	14	4.40			
4	5 29/32	20	10.50	5 9/16	14 13/16	5.20	6 1/16	13 11/16	4.20
5	7 9/32	21 1/2	12.00	7 1/4	16 11/16	7.20			
6	8 13/32	22 9/16	12.50	8	17 15/16	9.00	8 3/16	15 13/16	5.80
7	9 17/32	23 5/8	13.25						
8	10 17/32	24 3/4	15.75	10 1/2	20 3/16	10.50	10 5/16	18 1/16	7.90
9	11 21/32	25 7/8	16.25						
10	12 19/32	26 7/8	17.50	12 7/8	22 7/8	12.00	12 7/16	20 3/16	9.75
12	14 25/32	29	21.50	14 1/2	24 15/16	15.00	14 11/16	22 7/16	11.25
14	17 1/32	31	23.00	16 15/16	27 3/8	18.75	16 11/16	24 11/16	13.35
15	17 29/32	31 7/8	27.00						
16	18 21/32	32 11/16	27.50				18 11/16	26 11/16	16.60
18	20 21/32	34 3/4	30.00				20 11/16	28 11/16	18.90
20	22 21/32	36 3/4	35.00				22 11/16	30 11/16	22.35
22							24 11/16	33 1/4	

The above inside and outside diameter dimensions are given in inches



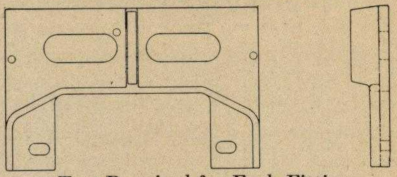
When ordering parts always give model letter and size of **Variator** for which parts are required.

Backing Plate

These backing plates are die-punched from steel plates.

List price, 20c

Anchors for Model O



Two Required for Each Fitting

Weights (given in pounds)

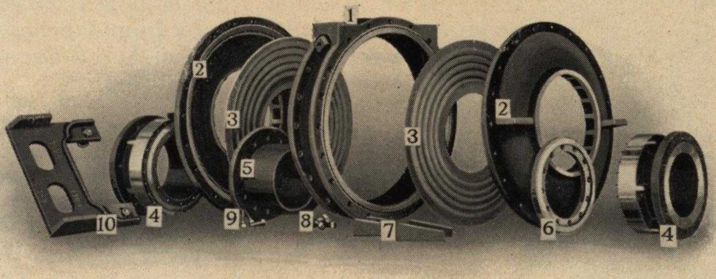
For Single Variators

Size	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Weight pair	46	46	46	50	50	50	50
Size	**10**	**12**	**14**	**15**	**16**	**18**	**20**
Weight pair	78	78	78	78	124	124	90

For Double Variators

Size	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Weight pair	46	50	56	56	56	56	56
Size	**10**	**12**	**14**	**15**	**16**	**18**	**20**
Weight pair	68	68	106	106	124	134	134

These anchors are included in the price of Model O VARIATORS. If prices are desired, will quote on application.



The parts shown here are for a Model O Double Variator. When ordering parts for Single Variator, the cover, as shown by Fig. 2, should be classified as the slip cover or the stationary cover. The stationary cover is the part with service outlet and anchor lugs. The names of parts shown above are as follows:

1. Middle Shell (for Double Variator, only), 2. Cover, 3. Copper Diaphragm, 4. Slip, 5. Thimble, 6. Ring, 7. Backing Plate, 8. Cover Bolts, 9. Ring and Thimble Bolts, 10. Anchorage.

Construction of ADSCO Slip-Type Expansion Joints

ADSCO Expansion Joints are not merely the product of one man's ideas. They are the result of an accumulated experience of forty-nine years. Engineers who have had practical experience in the installation and use of expansion joints have contributed many valuable ideas toward the bringing of ADSCO Expansion Devices to their present degree of perfection.

The first ADSCO Expansion Joints were manufactured in 1877, and because of the close contact we have had with the users of expansion joints, we have been placed in a remarkably advantageous position for determining just what improvements should be made for better operation. This forty-nine years of specialized effort is greatly responsible for the recognized superiority of ADSCO Expansion Devices.

There is not a detail in any ADSCO Expansion Device that has not been worked out with the utmost care and accuracy. Not only will they function perfectly, give long and satisfactory service, remain tight, and require a minimum amount of attention, but they are constructed with careful consideration for compactness and extreme accessibility.

A most complete line of pattern equipment permits us to manufacture many combinations to meet the requirements of special service conditions.

The following details of construction are intended to give a clearer conception of the outstanding features of ADSCO Slip-Type Expansion Joints.

Body

The body is manufactured of close-grain grey iron or steel, depending on the service for which the joint is required. A recess in the body keeps the slip clear from sediment.

Packing Space or Stuffing Box

More study has been given to the stuffing box of ADSCO Expansion Joints than to any other construction detail. The sizes are based on experience rather than on theoretical calculations. They are deep and hold just the proper amount of packing to allow a sufficient compression to keep the joint tight. Our concentration on this detail has resulted in reducing the need for attention and repacking to a minimum.

Packing

Because many contractors and users prefer to pack expansion joints themselves, most ADSCO joints are supplied unpacked. We have made a thorough study of the merits of different kinds of packing, and we pack the joints in our plant when desired. For details about packing, see page 5.

Packing Glands

The packing glands are of heavy cast-iron construction. The gland is thick and serves as a guide to the slip. The long lip permits compressing the packing 50%.

Gland Studs

The packing-gland studs are made of steel of high tensile strength, are firmly embedded in the body, and are of sufficient size to give rigidity to the packing gland. Where preferred, monel metal studs with bronze nuts can be supplied at a slight additional cost.

Service Outlets

The service outlets are located at the top of the joint, so that only steam which is free from condensation will enter the service lines. The outlets are tapped on both sides of the joint for convenience in arranging piping. The threads are clean-cut.

The joint is so designed that the slip never obstructs the outlet opening.

Anchor Base

The anchor base, cast integral with the body, is well supported by heavy webs and is drilled with four bolt-holes. It is well suited for anchoring to channel iron or steel work for interior piping, as well as for anchoring to a sub-base or concrete floor for underground work.

Drip

All iron-body slip-type joints are furnished with a boss, and tapped for drip when so ordered. The drip is located at the bottom of the recess in the body, so that the joint will be completely drained. Sizes of drip tappings are large and provide an ample drainage outlet.

Traverse

The traverse available from standard pattern equipment ranges in multiples of 2 from 4 inches to 12 inches. This permits selecting an ADSCO Expansion Joint for the exact traverse required.

Slips

ADSCO Expansion Joints are regularly supplied with brass slips of iron-pipe size with flanges screwed on. The brass slips are recommended for their smooth sliding surface and rust-proof quality.

The joints may, however, be furnished with steel, wrought-iron, or bronze slips, as shown on page 30.

If other than the regular brass slip with screwed flange is preferred, we will quote price on application.

ADSCO Slip-Type Expansion Joints are made in various designs to meet different conditions. These various designs are described on the following pages.

Semi-Guided

The ADSCO Semi-Guided Expansion Joint is constructed for steam, water, air, or gas, and can also be furnished with steel slips for oil service. It is extensively used in underground steam lines as well as in interior heating systems.

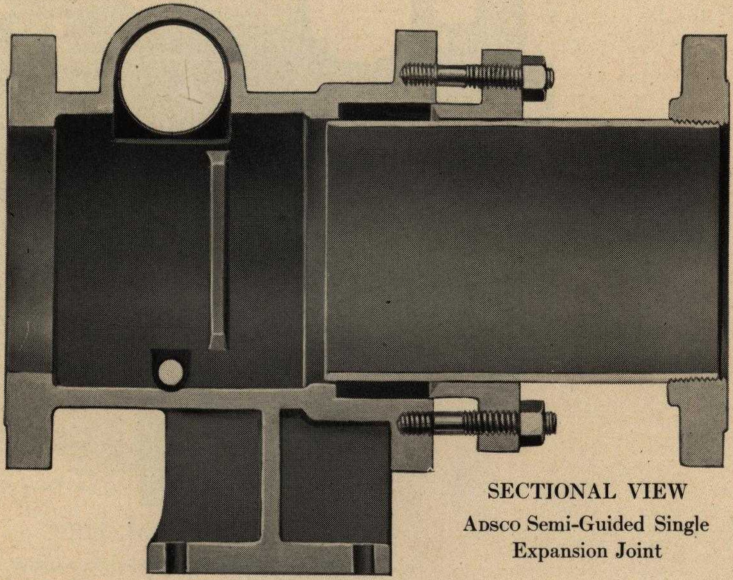
The guiding rib on the body is extra wide and accurately machined. The packing gland, held rigidly in position by heavy studs, guides the slip at the outer end.

Lugs, cast integral with the body, provide limit stops for the inward travel of the slip.

Manufactured in single and double slip types, with or without anchor and service outlets.

Prices and detail dimensions

For 125-lb. pressure on pages 16 and 17
For 250-lb. pressure on pages 22 and 23



SECTIONAL VIEW
ADSCO Semi-Guided Single Expansion Joint

Semi-Guided with Tie Rods

Built for steam, water, air, or gas. Also furnished with steel slips for oil service. Used extensively in power-house piping, tunnel work, and surface oil lines where conditions do not permit of a fully-guided expansion joint, but where protection against the slip pulling out of the body is desired.

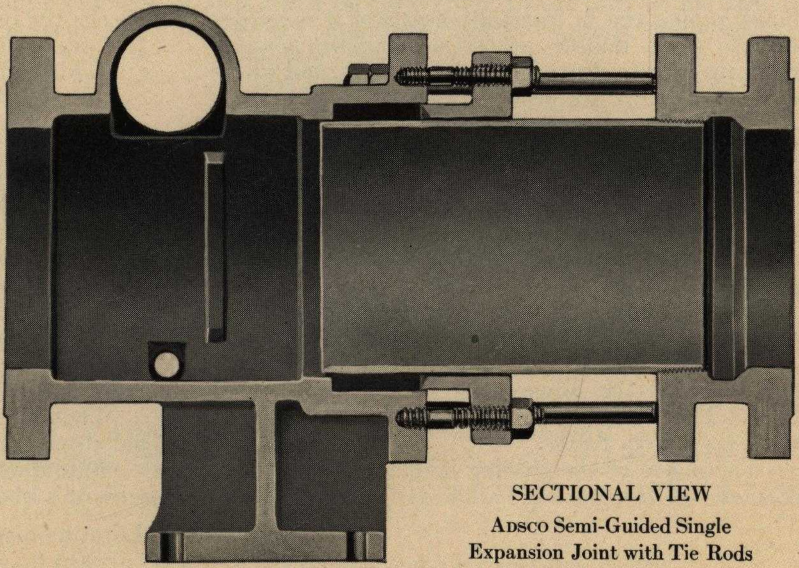
In addition to the features of the semi-guided joint described above, this joint is supplied with heavy tie rods which are screwed into a heavy flange hub, and travel through an enlarged body flange.

Two nuts, placed on the free ends of the tie rods, come in contact with the heavy flange when the expansion limit is reached, and provide an absolute limit stop to the outward travel of the slip.

Manufactured in single and double slip types, with or without anchor and service outlets.

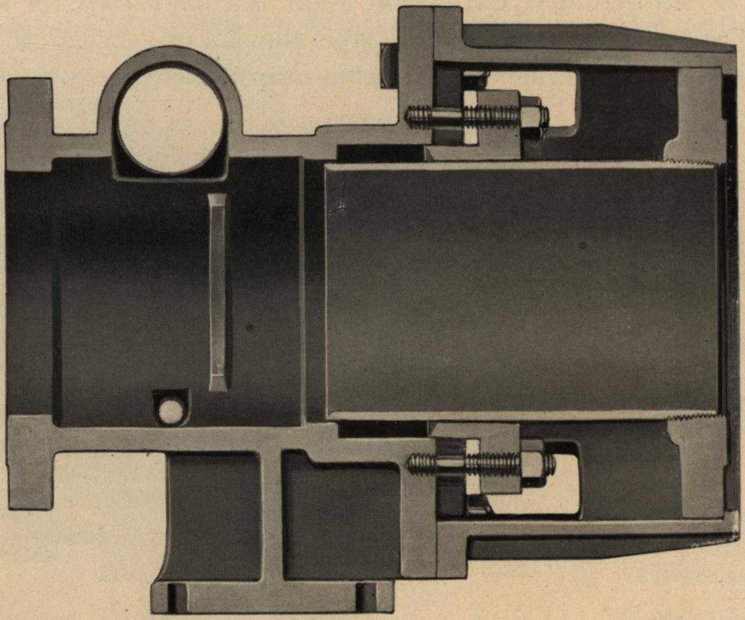
Prices and detail dimensions

For 125-lb. pressure on pages 18 and 19
For 250-lb. pressure on pages 24 and 25



SECTIONAL VIEW
ADSCO Semi-Guided Single Expansion Joint with Tie Rods

Externally-Guided



SECTIONAL VIEW
Adsco Externally-Guided Expansion Joint

For steam, water, air, or gas. Also furnished with steel slip for oil service. This joint is used largely in power-house piping as well as in underground steam lines and oil lines.

Wherever possible the use of fully-guided expansion joints is recommended. Increasing pressure and tendencies to use expansion joints where pipe bends had been used heretofore have made the fully-guided joint more desirable, particularly for power-house piping and in installations where it is important to have double protection against possible ruptures (due to slip pulling out of body), and where expansion joints are installed in long pipe runs.

The Adsco External Guide checks distortion (due to "weaving" in a pipe) at the guiding flange, so that the slip and packing are relieved of the cramping strain. By equalizing the pressure on the packing, uneven wear is prevented and the serviceability of the packing is greatly prolonged; at the same time a tight joint is assured.

The External Guide assures correct alignment of the slip when Expansion Joint is installed.

The Adsco Externally-Guided Expansion Joint embodies all the advantages of the semi-guided type. The heavy guiding hood is firmly bolted to the heavy body flange.

The inside of the guiding hood and the outside diameter of the guiding flange on the slip are machined for proper clearance and minimum friction.

The guiding flange is larger in diameter than a companion flange, so that when it is in the extreme outward position it bears against a limit stop, cast integral with the guiding hood. This rigid stop checks the outward travel of the slip and is a positive prevention against rupture.

Added strength is secured by the heavy ribs cast on the outside of the guiding hood.

Openings are located at each gland bolt to facilitate inspection and permit tightening the packing gland without removing the hood, yet allowing one to see that the gland is tightened evenly and is not cramping or scraping the slip. Since it is essential that the gland be tightened evenly, these openings are an essential feature for maintaining satisfactory operation.

By guiding the slip on the extreme outer end and inside the body by the wide guide rib, a straight line travel of the slip is assured.

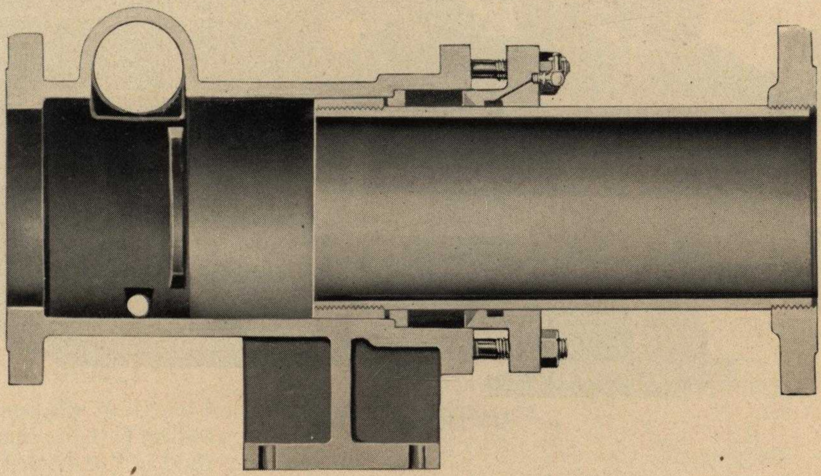
The inward travel of the slip is limited by internal stops cast integral with the body.

Manufactured in single and double slip types with or without anchor and service.

Prices and Detail Dimensions

125-lb. pressure on pages 20 and 21 — 250-lb. pressure on pages 26 and 27

Internally-Guided



SECTIONAL VIEW
Adsco Internally-Guided Expansion Joint

For steam, water, air, or gas. Also furnished with steel slip for oil service. Extensively used for inside piping because of its economy of space and where it is desirable to have absolute limit stop to both inward and outward travel of slip.

The Adsco Internally-Guided Expansion Joint embodies all the advantages of the Adsco Semi-Guided Expansion Joint. In addition the extreme inner end of the slip is fitted with a specially-designed brass sleeve guide, the outside of which is accurately machined and rides on the machined surface inside the expansion joint body. Thus the inner end of the slip is guided throughout its entire travel.

The brass guide is wide and has sufficient bearing surface to reduce the wear to an absolute minimum. The edges are rounded, so they will not scrape the body metal. Minimum thickness of this guide prevents freezing, or a loose fit, due to difference in metal expansion.

This guide, which rides on the body surface around its entire diameter, prevents sediment or scale from coming in contact with the slip, so important to prevent cutting or scraping the packing.

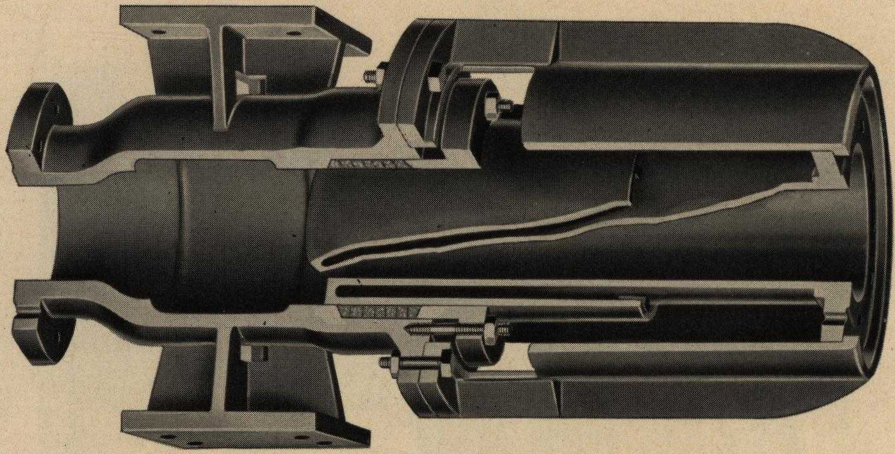
The cast-iron gland, held in rigid and concentric position by heavy gland studs, guides the slip at the outer end. This gland is fitted with an alemite cup and a recess, so that grease may be applied to the slip and the surface against the packing lubricated.

The Adsco Internally-Guided Expansion Joint can also be furnished with an external guide as shown on page 10. This combination forms the Adsco Internally-Externally-Guided Expansion Joint, placing a guide contact at the two extreme ends of the slip so that a long guiding support and the most effective and positive guide available are secured.

The internal guide can be furnished on all Adsco Slip-Type Expansion Joints shown between pages 16 and 27.

Prices and dimensions on Adsco Internally-Guided Expansion Joints will be quoted on application. If internal guide is desired, specify the type of expansion joint desired and add "Internally Guided."

For High Pressure and Superheated Steam



SECTIONAL VIEW

HERE is an expansion joint developed primarily for high temperatures. The principle has worked out so well that the Adsco Duplex-Sleeve Guided Expansion Joint has been selected not only for superheat service but for many installations where the pressure and temperature range is not above normal but where additional protection against wear of packing is desired.

This joint presents an entirely new principle in expansion joint design and construction. Its reception has been so favorable that many engineers previously opposed to the use of expansion joints are now specifying the Adsco Duplex-Sleeve Guided Type for every job requiring expansion devices.

A brief description of the construction will show just why this joint will work successfully under extreme conditions where other joints have failed.

Design

The design was produced by skilled engineers who have drawn on an accumulated experience of forty-nine years in the use of expansion joints and the developing of engineering details.

It was not produced as a competitive fitting but rather as a device which will serve satisfactorily under extreme working conditions and eliminate expansion trouble in high temperature lines.

Body

The body is made of close-grain grey iron for saturated steam up to 250 pounds pressure, or of steel for superheat service and for pressure above 250 pounds.

Anchor

Particular study has been given to the anchor base and its position on the body, to reduce shrinking strain and provide easy access to the anchor bolts.

For installation in underground lines, heavy anchor saddles which can be imbedded in concrete or masonry and bolted to the base are furnished. The joint can be supplied with one bottom anchor base, or with two side anchors.

Air-Cooled Sleeve

The Duplex Air-Cooled Sleeve is the outstanding feature of this joint. It eliminates excessive packing and maintenance costs.

The sleeve consists of an inner and outer slip, welded at one end, insuring a permanently tight and strong joint. The opposite end of the outer sleeve is held in rigid and concentric position by small steel blocks welded in place.

The open space between the inner and outer sleeves permits the circulation of air. This keeps the outer sleeve, which bears against the packing, at a considerably lower temperature than the inner sleeve, which is in contact with the steam. As heat is responsible for packing deterioration, this air-cooled sleeve greatly prolongs the serviceability of the packing.

The surface of the outer sleeve is accurately ground and treated with a rust-proof process. This polished surface eliminates the possibility of scored packing, wear is minimized and a constantly tight joint assured.

Two important services, then, performed by the Duplex Air-Cooled Sleeve are: lengthening the time between gland adjustments and making possible the use of lower priced packing than would otherwise be required.

Guide

The guide is a carefully designed hood of close-grain grey iron or semi-steel. The heavy flange on the guide is rigidly bolted to the body and kept in true alignment by a male and female joint. Heavy ribs, cast integral with the hood, add strength and rigidity.

The entire inside surface of the hood and the outer surface of the guiding flange, which is welded to the slip, are accurately machined, so that the flange rides inside the hood with a minimum of clearance and friction. Sagging of the slip and distortion due to "weaving" of the pipe line are prevented.

Outward travel of the sleeve is limited by a stop-ring, cast integral with the guide. The guiding flange, being larger in diameter than a companion flange, comes in contact with this limit stop and prevents the slip from pulling out. Inward travel is limited by the shoulder in the body casting. The slip end bears against this shoulder when full traverse has been absorbed.

Openings in the guide are located at each gland stud, so that the packing gland may be tightened without removing the guide. These openings also facilitate inspecting and tightening the gland uniformly, so that no portion will scrape against the sleeve.

Packing Space or Stuffing Box

The packing space is based on best engineering practice and our forty-nine years' experience in the manufacture and maintenance of all types of expansion joints.

Provision is made for the use of a large quantity of packing, or rings can be inserted to adjust the size for the use of a less quantity. Thus, nearly any type of packing may be used.

Packing Gland

The long packing gland permits compressing the packing approximately 50% before repacking is necessary. The inside surface is carefully machined and sufficiently large to prevent contact with or scraping the surface of the sleeve.

Gland Studs

Heavy monel-metal gland studs are firmly imbedded in the body and furnished with bronze nuts to prevent freezing. The packing gland can be easily tightened.

Traverse

Adsco Duplex-Sleeve Guided Expansion Joints are made with 4-in., 8-in. or 12-in. traverse.

Welding

The cast-iron body joints are furnished with flanged ends F & D, A.S.M.E. Standard for 250 pounds pressure or, if desired, can be furnished with the slip end beveled for welding.

We have not had sufficient satisfactory experience with the welding of cast iron to warrant our recommending the use of a cast-iron body joint for welding into pipe lines.

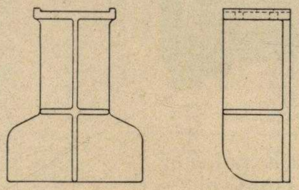
The cast-steel body joint can be furnished either with flanges or with both body and slip ends beveled for welding.

Where the acetylene welding process is to be used, we recommend that a nipple be electrically-welded to the body end of the joint, because the difference in metal thickness of the body and pipe retards acetylene welding and there is danger that the heat absorption by the body may cause distortion.

We can furnish this joint with a nipple electrically-welded to the body, if so desired. The acetylene welding then becomes a regular pipe-welding process. For prices and detail dimensions, see pages 28 and 29.

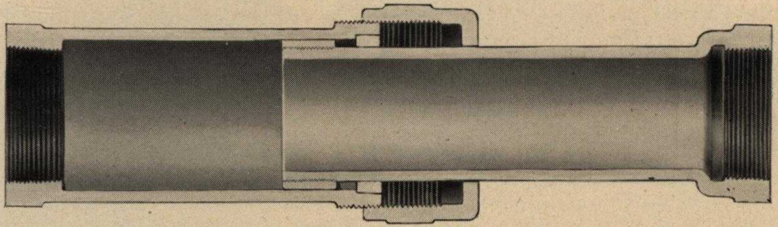
Anchor saddles which may be imbedded in concrete or masonry and then bolted to the side anchors on the Duplex-Sleeve Expansion Joint.

Prices quoted on application.



ADSCO All-Brass Riser Expansion Joints

125 Pounds Working Steam Pressure



SECTIONAL VIEW

The ADSCO Riser Expansion Joint is a quick solution for taking care of the expansion in risers, supply and return lines of interior heating systems. It takes the place of makeshift pipe fitting and other uncertain and troublesome arrangements for overcoming expansion trouble.

In most modern construction of high buildings it is extremely difficult and costly to install "loops" or "swings," yet the expansion of the pipe in the risers as well as in the supply and return lines must be provided for.

The ADSCO Riser Expansion Joint is a convenient device and very inexpensive to install. The absorption of pipe expansion will be automatic and certain without strain on any fittings.

The bronze guide sleeve attached to the inner end of the slip of the ADSCO Riser Expansion Joint, guides the slip throughout its travel, always keeps the slip in true alignment, so that any weaving or twisting in the pipe line will not distort the slip or cause unequal pressure and wear on the packing. Long service of the packing and a tight joint are thus assured.

The guide sleeve is accurately machined to fit the finished surface inside the body and allow free travel of the slip, yet preventing sediment or scale from passing between the guide and body and coming in contact with the slip.

This is a decided advantage, since sediment and scale are present in all heating systems, and any accumulation on the slip may scrape or cut the packing when the slip travels to an outward position, due to contraction of the pipe line. By keeping the sediment away from the slip the life of the packing is prolonged and periods between repacking are surprisingly lengthened.

The guide sleeve comes in contact with a special ring when the slip is in the extreme outward position, which provides a limit stop to prevent the slip from pulling out of the joint.

ADSCO Riser Expansion Joints are furnished with brass body and slip, screwed ends, and with 4-inch traverse. If longer traverse is required, we will quote on application.

ADSCO Riser Expansion Joints can be used on any steam or hot water heating system.

No. R-1

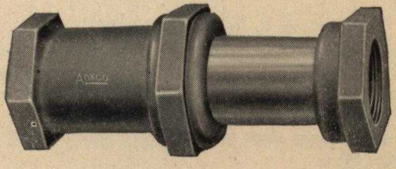
ADSCO All-Brass Riser Expansion Joint, Internally-Guided

Prices and Dimensions
All-Brass Riser Expansion Joint

Size	Traverse Inches	End-to-End Inches	Approximate Shipping Wght.	List Price
¾	4	12 1/16	4	$ 8.00
1	4	12 3/16	5	9.00
1¼	4	12 7/16	6	12.00
1½	4	12 7/16	7	15.00
2	4	13	10	19.00
2½	4	13 7/16	17	31.00
3	4	14	20	39.50

ADSCO Standard Single Expansion Joints

125 Pounds Working Steam Pressure

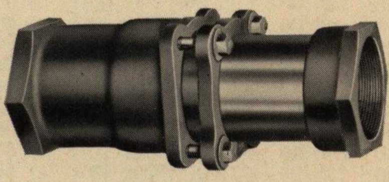


No. B-1

The ADSCO Standard All-Brass Single Expansion Joint is used chiefly for interior piping work. It is particularly well adapted for steam and hot water lines in heating systems and also for air and gas lines.

The heavy body and slip give the joint a sturdiness uncommon to most brass joints. The hub is integral with the slip.

The packing gland is of the screw-nut type.

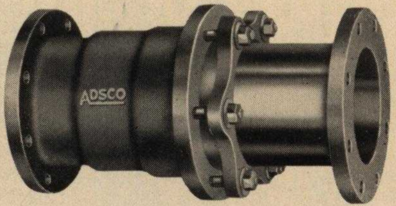


No. H-1

The ADSCO Standard Iron-Body Single Expansion Joint with screwed ends, regularly supplied with brass slip, is largely used for interior piping where the sizes run two inches and over.

The low cost makes it an economical expansion joint to use for either hot water or steam heating work. It saves a great deal of piping work, and eliminates the uncertainty of makeshift swings for taking up expansion. This joint is also used in outdoor piping.

Suitable for steam, water, air, and gas. Can be furnished with steel slip, adapting it to oil-line service.



No. K-1

ADSCO Standard Iron Body Single Expansion Joint, flanged ends. The service of this joint is unlimited within its pressure range. The heavy cast-iron body and brass slip make it adaptable to the most severe service conditions.

The flanges are faced and drilled A.S.M.E. Standard for 125-lb. pressure. For steam, water, air, and gas. Can be furnished with steel slip for oil service.

ADSCO Standard All-Brass Expansion Joints, Screwed

125 Pounds Working Steam Pressure

Size	Std. Tra.	*End-to-End Std. Tra.	Approx. Shpg. Wght. Std. Tra.	List Price					
				Std. Tra.	4-in. Tra.	†6-in. Tra.	8-in. Tra.	10-in. Tra.	12-in. Tra.
¾	2¼	7	2	2.20	4.00	8.25	9.00	9.75	10.50
1	2¼	7 3/16	2	2.75	4.90	9.00	10.00	11.00	12.00
1¼	2¼	7⅜	3	4.00	6.30	10.00	11.25	12.50	13.75
1½	2¼	7⅜	4	5.00	7.40	11.50	13.00	14.50	16.00
2	2½	8⅜	7	8.00	9.10	13.50	15.50	17.50	19.50
2½	2½	8⅞	14	17.50	20.10	24.00	27.00	30.00	33.00
3	2¾	9⅝	16	24.00					

*Dimensions are from end to end of standard traverse joints when open.
†Eastern traverse.
Prices do not include packing. See page 5.

ADSCO Standard Iron-Body Single Expansion Joints, Screwed

125 Pounds Working Steam Pressure

Size	Std. Trav.	*End-to-End Std. Trav.	†Approx. Shpg. Wght. Std. Trav.	List Price			
				Std. Trav.	‡6-in. Trav.	10-in. Trav.	12-in. Trav.
2	4	17⅜	23	7.00	11.00	16.00	18.50
2½	4	18¼	31	8.00	13.00	19.00	22.00
3	4	18⅜	41	10.00	17.50	25.00	29.00
3½	4	18⅝	52	14.00	25.00	35.00	40.00
4	4	20	66	18.00	30.00	42.00	48.00
5	4	20¾	80	38.00	45.00	62.00	70.00
6	5	23¼	105	45.00	55.00	80.00	92.50
8	7	27⅝	161	100.00		140.00	160.00
10	7	28⅝	230	160.00			
12	8	30½	380	225.00			

*Dimensions are from end to end of standard traverse joints when open
†Weights are for standard traverse joints.
‡Eastern traverse
Prices do not include packing. See page 5.

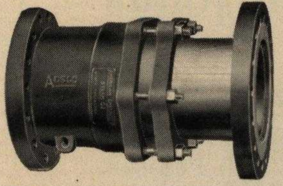
ADSCO Standard Iron-Body Single Expansion Joints, Flanged

125 Pounds Working Steam Pressure

Size	Standard Traverse	Face-to-Face	Approximate Shipping Weight Std. Traverse	List Price Standard Traverse
2	4	18¼	31	$ 15.00
2½	4	18⅝	42	16.00
3	4	19 7/16	58	18.50
3½	4	20	72	25.00
4	4	21¾	80	30.00
5	4	16⅝	87	48.00
6	5	19½	128	55.00
8	7	25 5/16	210	110.00
10	7	27	300	175.00
12	8	30⅝	490	250.00
14	10	39¼	784	500.00
16	10	41	850	600.00

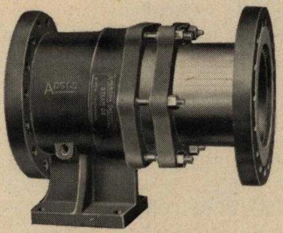
*Dimensions are from face to face when open.
Prices do not include packing. See page 5.
For longer traverse, see Joint No. S-1 on page 16.

Single Slip Semi-Guided



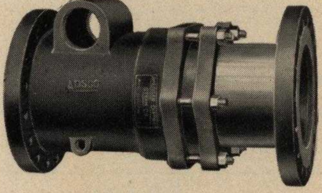
No. S-1

Adsco 125 pound Single Semi-Guided Expansion Joint.
No anchor, no service.



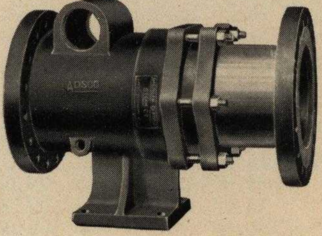
No. S-2

Adsco 125 pound Single Semi-Guided Expansion Joint.
With anchor, no service.



No. S-3

Adsco 125 pound Single Semi-Guided Expansion Joint.
With service, no anchor.



No. S-4

Adsco 125 pound Single Semi-Guided Expansion Joint.
With anchor, with service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 125 pounds pressure, for steam, water, air and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

For detailed description of semi-guided joints, see page 9.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse
	No. S-1	No. S-2	No. S-3	No. S-4	
2	$ 18.30	$ 21.70	$ 21.50	$ 25.00	$ 2.40
2½	19.50	23.10	22.70	26.40	3.20
3	22.60	26.40	25.80	29.60	4.10
3½	30.50	34.50	37.00	41.00	4.50
4	36.60	40.60	43.00	47.00	4.90
5	58.60	63.00	65.00	69.40	5.40
6	64.20	69.20	77.10	82.10	5.80
8	117.20	123.80	130.10	136.70	11.30
10	173.50	181.10	186.40	192.00	13.80
12	241.80	250.60	254.70	263.50	18.20
14	479.90	490.30	512.20	522.50	25.60
16	577.80	590.40	610.10	622.70	30.00
18	720.00	735.20	777.00	792.20	41.00
20	810.00	828.80	900.20	919.00	46.40

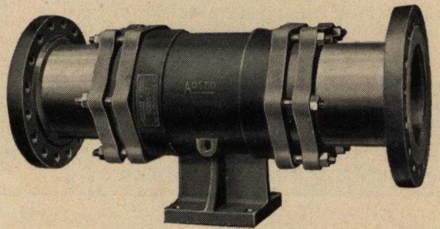
These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

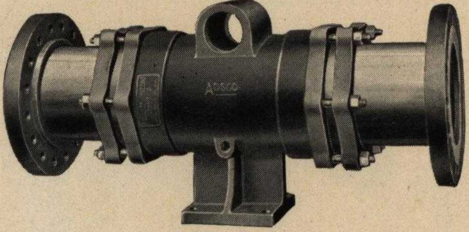
Prices on steel joints on application.

Double Slip Semi-Guided



No. D-2

Adsco 125 pound Double Semi-Guided Expansion Joint. With anchor, no service.



No. D-4

Adsco 125 pound Double Semi-Guided Expansion Joint. With anchor, with service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins. Per Slip

The Double Slip Adsco Semi-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

List Prices

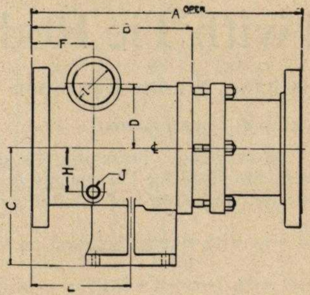
Size	4-in. Traverse Per Slip		Add for each additional 2 in of traverse both slips
	No. D-2	No. D-4	
2	$ 45.50	$ 49.00	$ 4.80
2½	52.50	56.00	6.40
3	59.50	63.00	8.10
3½	77.00	84.00	8.90
4	98.00	105.00	9.70
5	140.00	147.00	10.70
6	168.00	182.00	11.50
8	266.00	280.00	22.50
10	406.00	420.00	27.70
12	546.00	560.00	36.40
14	805.00	840.00	51.20
16	1085.00	1120.00	60.00
18	1211.00	1260.00	81.90
20	1554.00	1610.00	92.80

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

Prices on steel joints on application.



Single Slip Semi-Guided

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On other joints, the drip tapping is located about midway between center of anchor base and inside of body flange.

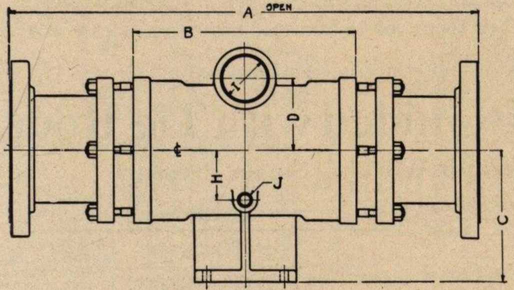
Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S1 No. S2		No. S3 No. S4				No. S2	No. S4			Size of Service	Size of Drip	Approximate Ship. Weights				
	*A	†B	*A	†B	C	D	‡E	‡E	F	H	§I	J	S1	S2	S3	S4	Add for each add'nl 2 in. of traverse
2	17½	9⅜	18⅜	10¼	6	2	6½	7⅜	3¼	15/16	1½	½	29	40	34	45	4
2½	17 15/16	9 7/16	20⅛	11⅝	6¼	2½	6½	8 11/16	3⅝	1¼	2	½	34	47	41	54	6
3	18¼	9⅝	20⅜	11¾	6⅝	3	6⅜	8½	3¾	1½	2	½	59	73	69	83	8
3½	18⅜	9 11/16	20½	11 13/16	6⅞	3¼	6 7/16	8 9/16	3 13/16	1¾	2	½	77	90	86	100	9
4	19 13/16	10 9/16	22⅝	13⅜	7	3½	6⅝	9 7/16	4 7/16	1⅞	2½	¾	94	108	109	123	10
5	20 1/16	10 9/16	23¾	14¼	7⅞	4	6⅛	9 13/16	5	2⅜	3	¾	122	137	145	160	12
6	20¾	11	24⅛	14⅜	8½	4½	6½	9⅞	5⅛	2¾	3	1	151	169	175	193	14
7	21 15/16	11 15/16	26 3/16	16 3/16	9¾	5½	7 7/16	11 11/16	5 13/16	3⅜	4	1	203	224	246	267	16
8	22¼	12⅛	26⅝	16½	10⅜	6	6⅝	11	6	3⅞	4	1	262	285	315	338	19
10	23⅛	12¼	27 13/16	16 15/16	12	7	6⅝	11 5/16	6 1/16	4⅞	4	1	395	422	458	485	26
12	24	12⅞	29⅛	18	13¼	9	6¼	11⅜	6½	6	4	1	511	543	583	615	36
14	24 9/16	13¼	29 7/16	18⅛	14¼	9	6 9/16	11 7/16	6⅝	6⅜	4	1¼	704	742	809	847	50
15	25 1/16	13 7/16	31⅝	20	15	11½	6 11/16	13¼	8	6⅞	5	1¼					
16	25 3/16	13 7/16	31¾	20	15½	12	6⅝	13 3/16	8	7½	5	1¼	906	951	1045	1090	65
18	27	14 7/16	33 9/16	21	17	13½	7 3/16	13¾	8¼	8¼	5	1½	1255	1309	1455	1509	80
20	27 13/16	14 11/16	36 7/16	23 5/16	18½	14¾	7 7/16	16 1/16	9 11/16	9⅝	7	1½	1425	1493	1745	1813	96

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.

‡For each addititional 2 in. of traverse, add 2 in. to Dim. E.
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Semi-Guided

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

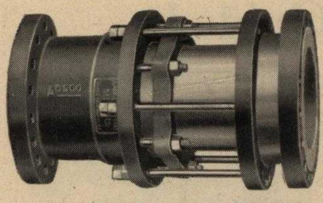
Dimensions and Weights for 4-in. Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D2		No. D4					Size of Service	Size of Drip	Approximate Ship. Weights		
	*A	†B	*A	†B	C	D	H	§I	J	D2	D4	Add for each add'nl 2 in. of traverse both slips
2	31¼	15	31½	15¼	6	2	15/16	1½	½	52	58	6
2½	32	15	33	16	6¼	2½	1¼	2	½	61	70	9
3	32¼	15	33½	16¼	6⅝	3	1½	2	½	94	107	12
3½	32⅜	15	33⅝	16¼	6⅞	3¼	1¾	2	½	118	131	13
4	34½	16	36⅜	17⅞	7	3½	1⅞	2½	¾	141	160	15
5	35	16	37½	18½	7⅞	4	2⅜	3	¾	178	208	19
6	35½	16	38	18½	8½	4½	2¾	3	1	220	251	23
7	38	18	40¾	20¾	9¾	5½	3⅜	4	1	291	347	28
8	38¼	18	41¼	21	10⅜	6	3⅞	4	1	370	439	34
10	39¾	18	43½	21¾	12	7	4⅞	4	1	549	630	44
12	41¼	19	45¼	23	13¼	9	6	4	1	706	799	54
14	41¾	19⅛	45⅝	23	14¼	9	6⅜	4	1¼	965	1101	80
15	42½	19¼	47¼	24	15	11½	6⅞	5	1¼			
16	42¾	19¼	47½	24	15½	12	7½	5	1¼	1236	1417	106
18	45¾	20⅝	50⅝	25½	17	13½	8¼	5	1½	1702	1962	135
20	47¼	21	53½	27¼	18½	14¾	9⅝	7	1½	1941	2357	172

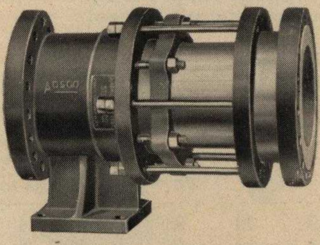
*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A. †For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15-in. and larger joints are flanged.

Single Slip Semi-Guided with Tie Rods



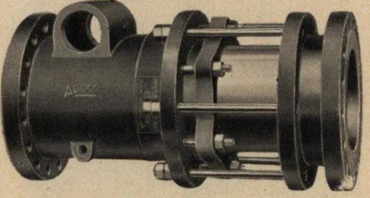
No. S1T

Adsco 125-lb. Single Semi-Guided Expansion Joint with Tie Rods. No anchor. No service.



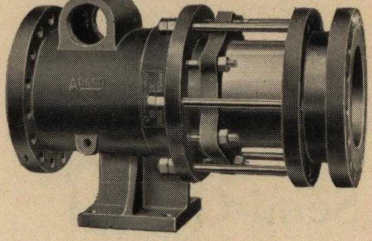
No. S2T

Adsco 125-lb. Single Semi-Guided Expansion Joint with Tie Rods. With anchor. No service.



No. S3T

Adsco 125-lb. Single Semi-Guided Expansion Joint with Tie Rods. With service. No anchor.



No. S4T

Adsco 125-lb. Single Semi-Guided Expansion Joint with Tie Rods. With anchor. With service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 125 pounds pressure, for steam, water, air, and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

For detailed description of semi-guided joints, see page 9.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse
	No. S1T	No. S2T	No. S3T	No. S4T	
2	$ 43.90	$ 47.30	$ 47.10	$ 50.50	$ 2.70
2½	46.10	49.70	49.30	52.90	3.70
3	52.40	56.20	55.50	59.40	4.70
3½	67.10	71.10	73.50	77.50	5.30
4	76.90	80.90	83.30	87.30	5.90
5	105.40	109.80	111.80	116.20	6.50
6	112.40	117.40	125.30	130.30	7.20
8	179.30	185.90	192.20	198.80	13.10
10	251.50	259.10	264.40	272.00	15.80
12	331.30	340.10	344.20	353.00	20.40
14	599.80	610.20	632.10	642.50	28.10
16	710.70	723.30	743.00	755.50	32.80
18	878.40	893.60	935.40	950.60	44.20
20	1052.00	1070.80	1142.20	1161.00	50.40

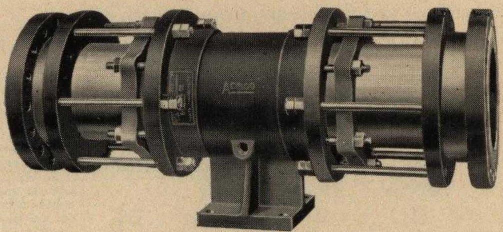
These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

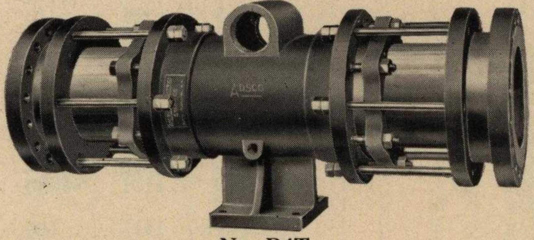
Prices on steel joints on application.

Double Slip Semi-Guided with Tie Rods



No. D2T

Adsco 125-lb. Double Semi-Guided Expansion Joint with Tie Rods. With anchor. No service.



No. D4T

Adsco 125-lb. Double Semi-Guided Expansion Joint with Tie Rods. With anchor. With service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Per Slip

The Double Slip Adsco Semi-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

List Prices

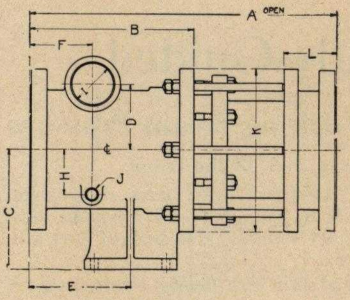
Size	4-in. Traverse		Add for each additional 2 in. of traverse both slips
	No. D2T	No. D4T	
2	$ 91.20	$ 94.50	$ 5.40
2½	95.70	99.00	7.40
3	108.50	111.70	9.40
3½	138.20	144.60	10.60
4	157.70	164.20	11.80
5	215.20	221.60	13.10
6	229.80	242.70	14.40
8	365.10	378.00	26.20
10	510.60	523.50	31.70
12	671.40	684.30	40.70
14	1210.00	1242.40	56.20
16	1434.00	1466.20	65.60
18	1772.00	1828.00	88.40
20	2122.80	2213.00	100.80

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

Prices on steel joints on application.



Single Slip Semi-Guided with Tie Rods

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On other joints, the drip tapping is located about midway between the center of anchor base and inside of body flange.

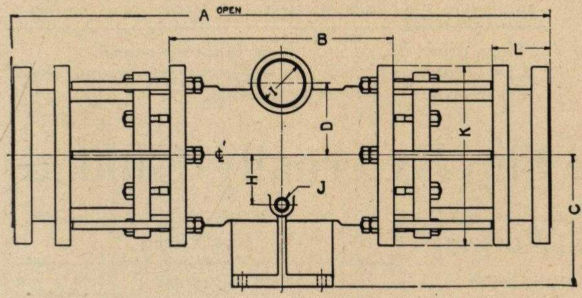
Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S1T No. S2T		No. S3T No. S4T				No. S2T	No. S4T			Size of Service	Size of Drip			No. of Tie Rods	Size of Tie Rods	Approximate Shipping Weights				
	*A	†B	*A	†B	C	D	‡E	‡E	F	H	§I	J	K	L			S1T	S2T	S3T	S4T	Add for each add'nl 2 in. of traverse
2	18½	9⅜	19⅜	10¼	6	2	6½	7⅜	3¼	15/16	1½	½	6⅝	2¼	2	½	35	46	40	51	5
2½	19	9 7/16	21 3/16	11⅝	6¼	2½	6½	8 11/16	3⅝	1¼	2	½	7⅛	2⅜	2	½	41	54	48	61	7
3	19⅝	9⅝	21¾	11¾	6⅝	3	6⅜	8½	3¾	1½	2	½	8¼	2¾	2	⅝	71	85	81	95	9
3½	19¾	9 11/16	21⅞	11 13/16	6⅞	3¼	6 7/16	8 9/16	3 13/16	1¾	2	½	8¾	2 13/16	2	⅝	87	91	97	111	10
4	21⅝	10 9/16	24 7/16	13⅜	7	3½	6⅝	9 7/16	4 7/16	1⅞	2½	¾	9¼	3¼	4	½	113	127	128	142	11
5	21¾	10 9/16	25 7/16	14¼	7⅞	4	6⅛	9 13/16	5	2⅜	3	¾	10	3¼	4	½	146	159	167	182	13
6	22 9/16	11	25 15/16	14⅜	8½	4½	6½	9⅞	5⅛	2¾	3	1	11¾	3½	4	⅝	181	199	205	223	15
7	23¾	11 15/16	28	16 3/16	9¾	5½	7 7/16	11 11/16	5 13/16	3⅜	4	1	13	3 9/16	4	⅝	244	265	287	308	17
8	24	12⅛	28⅜	16½	10⅜	6	6⅝	11	6	3⅞	4	1	14¾	3⅝	4	¾	314	337	367	390	21
10	25 5/16	12¼	30	16 15/16	12	7	6⅝	11 5/16	6 1/16	4⅞	4	1	17½	4 5/16	6	⅞	474	503	539	566	28
12	26⅛	12⅞	31¼	18	13¼	9	6¼	11⅜	6½	6	4	1	20⅜	4 7/16	6	⅞	613	645	685	717	38
14	26⅞	13¼	31¾	18⅛	14¼	9	6 9/16	11 7/16	6⅝	6⅜	4	1¼	22⅛	4⅞	6	⅞	845	883	950	1018	53
15	27 5/16	13 7/16	33⅞	20	15	11½	6 11/16	13¼	8	6⅞	5	1¼	24¼	4⅞	6	1					
16	27½	13 7/16	34 1/16	20	15½	12	6⅝	13 3/16	8	7½	5	1¼	25¼	5	6	1	1087	1132	1226	1271	69
18	29½	14 7/16	36 1/16	21	17	13½	7 3/16	13¾	8¼	8¼	5	1½	26⅞	5⅜	6	1⅛	1506	1560	1706	1760	85
20	30 9/16	14 11/16	39 3/16	23 5/16	18½	14¾	7 7/16	16 1/16	9 11/16	9⅝	7	1½	30	5¾	8	1⅛	1710	1778	2030	2098	101

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.

‡For each additional 2 in. of traverse, add 2 in. to Dim. E.
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Semi-Guided with Tie Rods

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.
If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

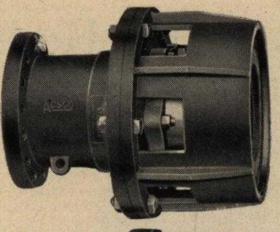
Dimensions and Weights for 4-in. Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D2T		No. D4T					Size of Service	Size of Drip			No. of Tie Rods	Size of Tie Rods	Approximate Shipping Weights		
	*A	†B	*A	†B	C	D	H	§I	J	K	L			D2T	D4T	Add for each add'nl 2 in. of traverse both slips
2	33¼	15	33½	15¼	6	2	15/16	1½	½	6⅝	2¼	2	½	60	66	10
2½	34⅛	15	35⅛	16	6¼	2½	1¼	2	½	7⅛	2⅜	2	½	70	79	14
3	35	15	36¼	16¼	6⅝	3	1½	2	½	8¼	2¾	2	⅝	110	123	18
3½	35⅛	15	36⅜	16¼	6⅞	3¼	1¾	2	½	8¾	2 13/16	2	⅝	138	151	20
4	38⅛	16	40	17⅞	7	3½	1⅞	2½	¾	9¼	3¼	4	½	165	185	22
5	38⅜	16	40⅞	18½	7⅞	4	2⅜	3	¾	10	3¼	4	½	207	237	26
6	39⅛	16	41⅝	18½	8½	4½	2¾	3	1	11¾	3½	4	⅝	259	290	30
7	41⅝	18	44⅜	20¾	9¾	5½	3⅜	4	1	13	3 9/16	4	⅝	344	400	34
8	41¾	18	44¾	21	10⅜	6	3⅞	4	1	14¾	3⅝	4	¾	438	507	42
10	44⅛	18	47⅞	21¾	12	7	4⅞	4	1	17½	4 5/16	6	⅞	654	736	56
12	45½	19	49½	23	13¼	9	6	4	1	20⅜	4 7/16	6	⅞	838	932	76
14	46⅜	19⅛	50¼	23	14¼	9	6⅜	4	1¼	22⅛	4⅞	6	⅞	1148	1323	106
15	47	19¼	51¾	24	15	11½	6⅞	5	1¼	24¼	4⅞	6	1			
16	47⅜	19¼	52⅛	24	15½	12	7½	5	1¼	25¼	5	6	1	1472	1652	138
18	50¾	20⅝	55⅝	25½	17	13½	8¼	5	1½	26⅞	5⅜	6	1⅛	2028	2288	170
20	52¾	21	59	27¼	18½	14¾	9⅝	7	1½	30	5¾	8	1⅛	2311	2727	202

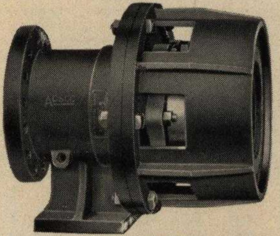
*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A.
†For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15- in. and larger joints are flanged.

Single Slip Externally-Guided



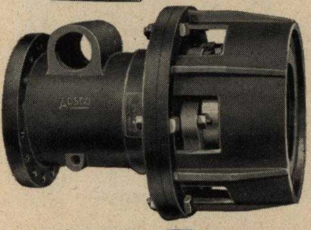
No. S1G

Adsco 125-lb. Single Externally-Guided Expansion Joint. No anchor, no service.



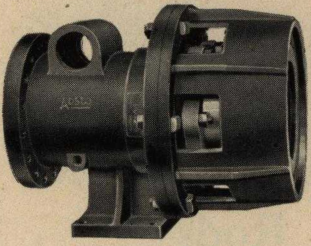
No. S2G

Adsco 125-lb. Single Externally-Guided Expansion Joint. With anchor, no service.



No. S3G

Adsco 125-lb. Single Externally-Guided Expansion Joint. With service, no anchor.



No. S4G

Adsco 125-lb. Single Externally-Guided Expansion Joint. With anchor, with service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 125 pounds pressure, for steam, water, air and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

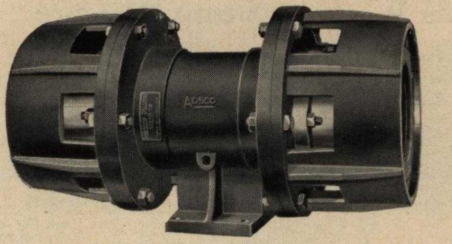
For detailed description of externally-guided joints, see page 10.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse
	No. S1G	No. S2G	No. S3G	No. S4G	
2	$ 43.20	$ 46.50	$ 46.40	$ 49.80	$ 4.50
2½	50.00	53.60	53.20	56.80	5.80
3	58.10	62.00	61.40	65.20	7.50
3½	63.30	67.30	69.80	73.80	8.20
4	72.70	76.70	79.10	83.10	8.80
5	97.10	101.50	103.60	108.00	9.70
6	109.50	114.50	122.40	127.40	11.00
8	169.70	176.30	182.60	189.20	18.20
10	242.80	250.40	255.60	263.20	25.00
12	327.60	336.30	340.40	349.00	32.00
14	578.30	588.70	610.50	621.00	41.40
16	695.50	708.10	727.80	740.40	49.80
18	854.00	869.10	911.00	926.10	63.10
20	969.00	987.60	1059.00	1077.80	71.30

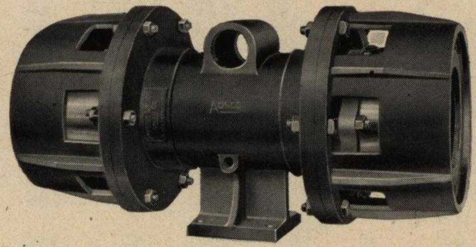
These prices do not include packing; see page 5.
Cost of tapping for drip, quoted in current discount sheet.
Prices on steel joints on application.

Double Slip Externally-Guided



No. D2G

Adsco 125-lb. Double Externally-Guided Expansion Joint. With anchor, no service.



No. D4G

Adsco 125-lb. Double Externally-Guided Expansion Joint. With anchor, with service.

125 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins. Per Slip

The Double Slip Adsco Externally-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

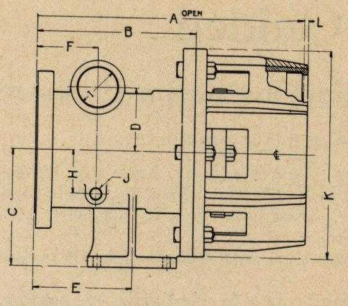
List Prices

Size	4-in. Traverse		Add for each additional 2 in. of traverse both slips
	No. D2G	No. D4G	
2	$ 95.10	$ 98.60	$ 9.10
2½	113.40	116.90	11.50
3	126.20	129.70	15.00
3½	142.60	149.60	16.40
4	170.20	177.20	17.60
5	217.10	224.10	19.40
6	258.60	272.60	21.90
8	371.00	385.00	36.30
10	544.50	558.60	49.90
12	717.40	731.40	64.00
14	1001.80	1036.80	82.90
16	1320.40	1355.40	99.50
18	1478.80	1527.80	126.20
20	1871.50	1927.50	142.50

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

Prices on steel joints on application.



Single Slip Externally-Guided

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On the other joints, the drip tapping is located about midway between the center of anchor base and inside of body flange.

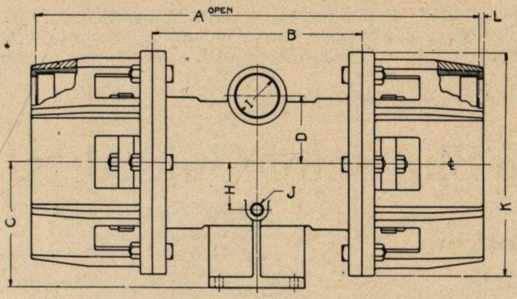
Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S1G No. S2G		No. S3G No. S4G				No. S2G	No. S4G			Size of Service	Size of Drip			Approximate Shpg. Wgts.				
	*A	†B	*A	†B	C	D	‡E	‡E	F	H	§I	J	K	L	S1G	S2G	S3G	S4G	Add for each add'nl 2 in. of traverse
2	17½	9⅜	18⅜	10¼	6	2	6½	7⅜	3¼	15/16	1½	½	10½	⅜	94	105	99	110	12
2½	17 15/16	9 7/16	20⅛	11⅝	6¼	2½	6½	8 11/16	3⅝	1¼	2	½	11⅜	⅜	122	135	129	142	16
3	18¼	9⅝	20⅜	11¾	6⅝	3	6⅜	8½	3¾	1½	2	½	12	½	174	188	184	198	20
3½	18⅜	9 11/16	20½	11 13/16	6⅞	3¼	6 7/16	8 9/16	3 13/16	1¾	2	½	13	½	205	219	215	229	22
4	19 13/16	10 9/16	22⅝	13⅜	7	3½	6⅝	9 7/16	4 7/16	1⅞	2½	¾	12¾	½	236	250	251	265	23
5	20 1/16	10 9/16	23¾	14¼	7⅞	4	6⅛	9 13/16	5	2⅜	3	¾	14⅛	½	273	288	296	311	27
6	20¾	11	24⅛	14⅜	8½	4½	6½	9⅞	5⅛	2¾	3	1	15⅝	½	334	352	358	376	33
7	21 15/16	11 15/16	26 3/16	16 3/16	9¾	5½	7 7/16	11 11/16	5 13/16	3⅜	4	1	17¾	½	405	426	448	469	40
8	22¼	12⅛	26⅝	16½	10⅜	6	6⅝	11	6	3⅞	4	1	18⅞	½	477	500	530	553	47
10	23⅛	12¼	27 13/16	16 15/16	12	7	6⅝	11 5/16	6 1/16	4⅞	4	1	22	⅝	691	718	754	781	67
12	24	12⅞	29⅛	18	13¼	9	6¼	11⅜	6½	6	4	1	24½	⅝	888	920	960	992	92
14	24 9/16	13¼	29 7/16	18⅛	14¼	9	6 9/16	11 7/16	6⅝	6⅜	4	1¼	26½	¾	1142	1180	1247	1285	122
15	25 1/16	13 7/16	31⅝	20	15	11½	6 11/16	13¼	8	6⅞	5	1¼	27⅞	¾					
16	25 3/16	13 7/16	31¾	20	15½	12	6⅝	13 3/16	8	7½	5	1¼	29	¾	1421	1466	1560	1605	158
18	27	14 7/16	33 9/16	21	17	13½	7 3/16	13¾	8¼	8¼	5	1½	30⅞	¾	1868	1922	2068	2122	204
20	27 13/16	14 11/16	36 7/16	23 5/16	18½	14¾	7 7/16	16 1/16	9 11/16	9⅝	7	1½	33⅝	¾	2159	2227	2479	2547	263

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.

‡For each additional 2 in. of traverse, add 2 in to Dim. E..
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Externally-Guided

125 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

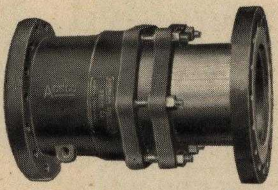
Dimensions and Weights for 4-in Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D2G		No. D4G					Size of Service	Size of Drip			Approx. Shpg. Wgts.		
	*A	†B	*A	†B	C	D	H	§I	J	K	L	D2G	D4G	Add for each add'nl 2 in. of traverse both slips
2	31¼	15	31½	15¼	6	2	15/16	1½	½	10½	⅜	136	143	24
2½	32	15	33	16	6¼	2½	1¼	2	½	11⅜	⅜	175	185	32
3	32¼	15	33½	16¼	6⅝	3	1½	2	½	12	½	244	257	41
3½	32⅜	15	33⅝	16¼	6⅞	3¼	1¾	2	½	13	½	284	297	44
4	34½	16	36⅜	17⅞	7	3½	1⅞	2½	¾	12¾	½	325	344	47
5	35	16	37½	18½	7⅞	4	2⅜	3	¾	14⅛	½	374	404	55
6	35½	16	38	18½	8½	4½	2¾	3	1	15⅝	½	458	489	67
7	38	18	40¾	20¾	9¾	5½	3⅜	4	1	17¾	½	554	610	80
8	38¼	18	41¼	21	10⅜	6	3⅞	4	1	18⅞	½	650	719	94
10	39¾	18	43½	21¾	12	7	4⅞	4	1	22	⅝	933	1015	134
12	41¼	19	45¼	23	13¼	9	6	4	1	24½	⅝	1196	1290	184
14	41¾	19⅛	45⅝	23	14¼	9	6⅜	4	1¼	26½	¾	1534	1670	244
15	42½	19¼	47¼	24	15	11½	6⅞	5	1¼	27⅞	¾			
16	42¾	19¼	47½	24	15½	12	7½	5	1¼	29	¾	1906	2086	316
18	45¾	20⅝	50⅝	25½	17	13½	8¼	5	1½	30⅞	¾	2498	2758	408
20	47¼	21	53½	27¼	18½	14¾	9⅝	7	1½	33⅝	¾	2895	3311	526

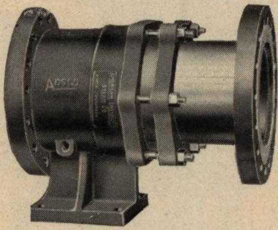
*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A. †For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15-in. and larger joints are flanged.

Single Slip Semi-Guided



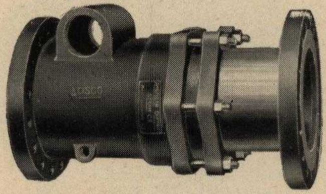
No. S-5

Adsco 250 pound Single Semi-Guided Expansion Joint.
No anchor, no service.



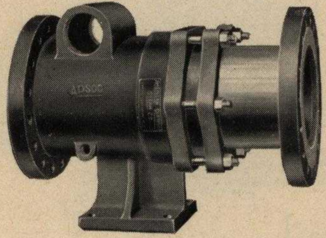
No. S-6

Adsco 250 pound Single Semi-Guided Expansion Joint.
With anchor, no service.



No. S-7

Adsco 250 pound Single Semi-Guided Expansion Joint.
With service, no anchor.



No. S-8

Adsco 250 pound Single Semi-Guided Expansion Joint.
With anchor, with service.

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 250 pounds pressure, for steam, water, air and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

For detailed description of semi-guided joints, see page 9.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse
	No. S-5	No. S-6	No. S-7	No. S-8	
2	$ 22.00	$ 26.00	$ 25.80	$ 29.90	$ 2.90
2½	23.40	27.80	27.30	31.60	3.80
3	27.10	31.60	31.00	35.50	4.90
3½	36.60	41.40	44.30	49.10	5.40
4	44.00	48.70	51.60	56.40	5.90
5	70.30	75.60	78.00	83.30	6.50
6	77.10	83.10	92.50	98.50	7.00
8	140.60	148.50	156.10	164.00	13.60
10	208.20	217.30	223.60	232.70	16.60
12	290.20	300.70	305.60	316.20	21.80
14	575.90	588.40	614.50	627.00	30.70
16	693.40	708.50	732.10	747.20	36.00
18	864.00	882.20	932.40	950.60	49.20
20	972.00	994.50	1080.20	1102.80	55.70

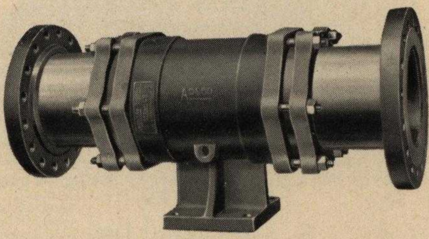
These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

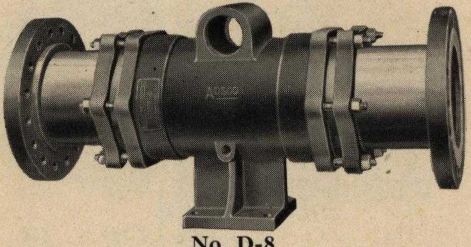
Prices on steel joints on application.

Double Slip Semi-Guided



No. D-6

Adsco 250 pound Double Semi-Guided Expansion Joint. With anchor, no service.



No. D-8

Adsco 250 pound Double Semi-Guided Expansion Joint. With anchor, with service.

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins. Per Slip

The Double Slip Adsco Semi-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

List Prices

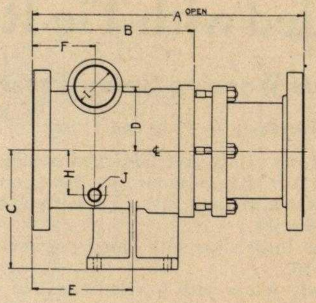
Size	4-in. Traverse		Add for each additional 2 in. of traverse both slips
	No. D-6	No. D-8	
2	$ 52.40	$ 56.40	$ 5.50
2½	60.40	65.60	7.40
3	68.40	72.40	9.40
3½	88.50	96.60	10.30
4	112.70	120.80	11.20
5	161.00	169.00	12.30
6	193.20	209.30	13.20
8	305.90	322.00	26.00
10	466.90	483.00	31.80
12	627.90	644.00	41.80
14	925.80	966.00	58.90
16	1247.80	1288.00	69.00
18	1392.60	1449.00	94.20
20	1787.10	1851.50	106.70

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

Prices on steel joints on application.



Single Slip Semi-Guided

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimensions.

When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On the other joints, the drip tapping is located about midway between center of anchor base and inside of body flange.

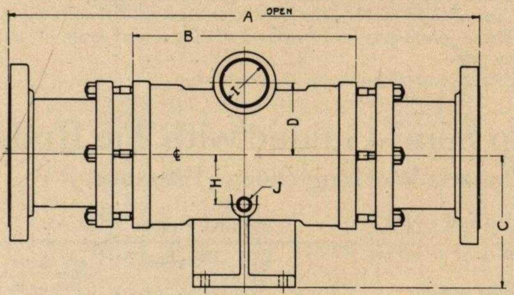
Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S5 No. S6		No. S7 No. S8				No. S6	No. S8			Size of Service	Size of Drip	Approximate Shipping Weights				
	*A	†B	*A	†B	C	D	‡E	‡E	F	H	§I	J	S5	S6	S7	S8	Add for each add'nl 2 in. of traverse
2	18	9⅝	18⅞	10½	6	2	6¼	7⅛	3½	15/16	1½	½	37	50	43	56	4
2½	18 15/16	9¾	21⅛	11 15/16	6¾	2½	6¼	8 7/16	3 15/16	1¼	2	½	42	58	51	67	6
3	19¼	10	21⅜	12⅛	7¼	3	5⅞	8	4⅛	1½	2	½	74	91	86	103	8
3½	19⅜	10 1/16	21½	12 3/16	7¾	3¼	5 15/16	8 1/16	4 3/16	1¾	2	½	95	112	107	124	9
4	20 13/16	10⅞	23⅝	13 11/16	8¼	3½	6⅜	9 3/16	4¾	1⅞	2½	¾	117	135	136	154	10
5	21 5/16	11	25	14 11/16	8¾	4	6	9 11/16	5 7/16	2⅜	3	¾	152	171	181	200	12
6	21 13/16	11 7/16	25 3/16	14 13/16	9¾	4½	6⅜	9¾	5 9/16	2¾	3	1	189	211	219	241	14
7	23 9/16	12⅜	27 13/16	16⅝	11	5½	7¼	11½	6¼	3⅜	4	1	254	280	308	334	16
8	23 15/16	12⅝	28 5/16	17	11¾	6	6⅛	10½	6½	3⅞	4	1	327	356	393	422	20
10	24 15/16	12 15/16	29⅝	17⅝	13	7	6 3/16	10⅞	6¾	4⅞	4	1	493	527	572	606	26
12	26⅝	13⅝	31¾	18¾	14½	9	6⅞	12	7¼	6	4	1	639	679	729	769	36
14	27⅛	14	32	18⅞	16½	9	7	11⅞	7⅜	6⅜	4	1¼	880	927	1010	1057	50
15	27⅝	14¼	34 3/16	20 13/16	17	11½	7⅜	13 15/16	8 13/16	6⅞	5	1¼					
16	28 1/16	14¼	34⅝	20 13/16	17⅞	12	7¼	13 13/16	8 13/16	7½	5	1¼	1132	1188	1307	1363	65
18	29⅝	15¼	36 3/16	21 13/16	19⅜	13½	7⅝	14 3/16	9 1/16	8¼	5	1½	1568	1636	1818	1886	83
20	30 1/16	15½	38 11/16	24⅛	20¾	14¾	7¾	16⅜	10½	9⅝	7	1½	1781	1866	2181	2266	106

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.

‡For each additional 2 in. of traverse, add 2 in. to Dim. E.
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Semi-Guided

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

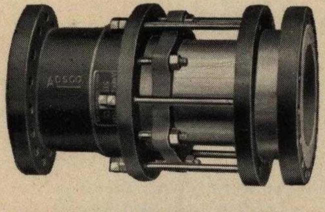
Dimensions and Weights for 4-in. Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D6		No. D8					Size of Service	Size of Drip	Approximate Shpg. Wgts.		
	*A	†B	*A	†B	C	D	H	§I	J	D6	D8	Add for each add'nl 2 in. of traverse both slips
2	31¾	15	32	15¼	6	2	15/16	1½	½	65	73	8
2½	33⅜	15	34⅜	16	6¾	2½	1¼	2	½	76	87	12
3	33½	15	34¾	16¼	7¼	3	1½	2	½	118	134	16
3½	33⅝	15	34⅞	16¼	7¾	3¼	1¾	2	½	146	162	18
4	35⅞	16	37¾	17⅞	8¼	3½	1⅞	2½	¾	175	200	20
5	36⅝	16	39⅛	18½	8¾	4	2⅜	3	¾	222	260	24
6	36¾	16	39¼	18½	9¾	4½	2¾	3	1	274	313	28
7	40⅜	18	43⅛	20¾	11	5½	3⅜	4	1	364	434	32
8	40⅝	18	43⅝	21	11¾	6	3⅞	4	1	463	549	40
10	42	18	45¾	21¾	13	7	4⅞	4	1	685	788	62
12	45	19	49	23	14½	9	6	4	1	883	1000	72
14	45⅜	19⅛	49¼	23	16½	9	6⅜	4	1¼	1205	1374	100
15	46	19¼	50¾	24	17	11½	6⅞	5	1¼			
16	46⅞	19¼	51⅝	24	17⅞	12	7½	5	1¼	1544	1772	130
18	49¾	21	54¼	25½	19⅜	13½	8¼	5	1½	2127	2452	166
20	50⅛	21	56⅜	27¼	20¾	14¾	9⅝	7	1½	2426	2946	212

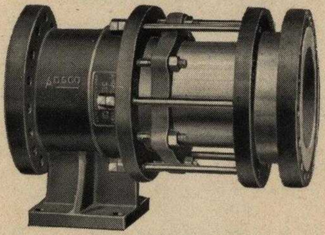
*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A. †For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15-in. and larger joints are flanged.

Single Slip Semi-Guided with Tie Rods



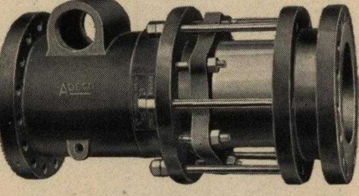
No. S5T

Adsco 250-lb. Single Semi-Guided Expansion Joint with Tie Rods. No anchor. No service.



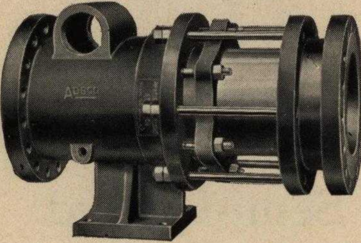
No. S6T

Adsco 250-lb. Single Semi-Guided Expansion Joint with Tie Rods. With anchor. No service.



No. S7T

Adsco 250-lb. Single Semi-Guided Expansion Joint with Tie Rods. With service. No anchor.



No. S8T

Adsco 250-lb. Single Semi-Guided Expansion Joint with Tie Rods. With anchor. With service.

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 250 pounds pressure, for steam, water, air, and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

For detailed description of semi-guided joints, see page 9.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse Both Slips
	No. S5T	No. S6T	No. S7T	No. S8T	
2	$ 45.10	$ 48.50	$ 48.40	$ 51.80	$ 3.20
2½	64.50	68.20	67.80	71.40	4.40
3	80.30	84.10	83.50	87.40	5.50
3½	91.50	95.50	97.90	101.90	6.20
4	105.40	109.50	111.90	115.90	6.90
5	115.60	120.00	122.00	126.40	7.60
6	138.60	143.60	151.50	156.50	8.40
8	181.00	187.60	193.90	200.50	15.30
10	312.10	319.70	325.00	332.60	18.60
12	390.00	398.80	402.90	411.70	24.00
14	670.00	680.40	702.20	712.70	33.20
16	903.60	916.20	935.80	948.50	38.80
18	1203.00	1218.10	1259.90	1275.10	52.40
20	1331.00	1349.80	1421.20	1440.00	59.70

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

These joints can be furnished with screwed ends at the same price.

Prices on steel joints on application.

Double Slip Semi-Guided with Tie Rods

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins. Per Slip

The Double Slip Adsco Semi-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

List Prices

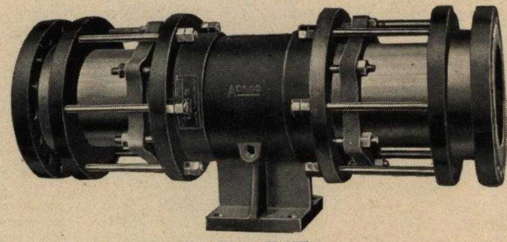
Size	4-in. Traverse		Add for each additional 2 in. of traverse both slips
	No. D6T	No. D8T	
2	$ 93.70	$ 97.00	$ 6.40
2½	132.70	136.00	8.80
3	164.40	167.60	11.00
3½	187.00	193.40	12.40
4	214.90	221.30	13.70
5	235.60	242.00	15.30
6	282.30	295.20	16.70
8	368.60	381.50	30.70
10	631.80	644.70	37.20
12	788.80	801.70	48.00
14	1350.40	1382.70	66.40
16	1819.80	1852.00	77.60
18	2421.00	2478.00	104.70
20	2680.80	2771.00	119.40

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

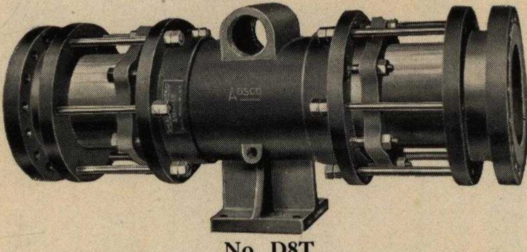
These joints can be furnished with screwed ends at the same price.

Prices on steel joints on application.



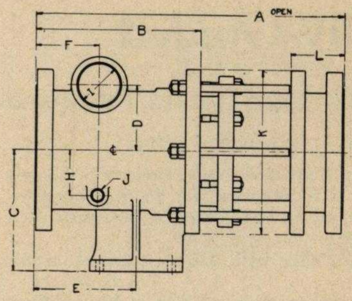
No. D6T

Adsco 250-lb. Double Semi-Guided Expansion Joint with Tie Rods. With anchor. No service.



No. D8T

Adsco 250-lb. Double Semi-Guided Expansion Joint with Tie Rods. With anchor. With service.



Single Slip Semi-Guided with Tie Rods

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

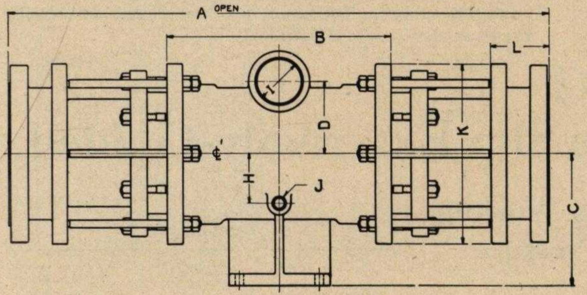
When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On other joints, the drip tapping is located above midway between the center of anchor base and inside of body flange.

Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S5T No. S6T *A	No. S5T No. S6T †B	No. S7T No. S8T *A	No. S7T No. S8T †B	C	D	No. S6T ‡E	No. S8T ‡E	F	H	Size of Service §I	Size of Drip J	K	L	No. of Tie Rods	Size of Tie Rods	Approximate Ship. Weights 4-in. Traverse S5T	S6T	S7T	S8T	Add for each add'nl 2 in. of traverse
2	19 3/8	9 5/8	20 1/4	10 1/2	6	2	6 1/4	7 1/8	3 1/2	15/16	1 1/2	1/2	7	2 3/4	2	5/8	44	57	50	63	5
2 1/2	20 5/8	9 3/4	22 13/16	11 15/16	6 3/4	2 1/2	6 1/4	8 7/16	3 15/16	1 1/4	2	1/2	7 7/8	3 1/8	2	5/8	50	66	59	75	7
3	21 1/16	10	23 3/16	12 1/8	7 1/4	3	5 7/8	8	4 1/8	1 1/2	2	1/2	8 1/2	3 3/8	2	3/4	89	106	101	118	9
3 1/2	21 3/16	10 1/16	23 5/16	12 3/16	7 3/4	3 1/4	5 15/16	8 1/16	4 3/16	1 3/4	2	1/2	9	3 7/16	2	3/4	114	131	126	143	11
4	22 15/16	10 7/8	25 3/4	13 11/16	8 1/4	3 1/2	6 3/8	9 3/16	4 3/4	1 7/8	2 1/2	3/4	9 3/4	3 7/8	4	5/8	140	162	163	181	12
5	23 9/16	11	27 1/4	14 11/16	8 3/4	4	6	9 11/16	5 7/16	2 3/8	3	3/4	11	4 1/8	4	5/8	182	201	211	230	14
6	24 1/16	11 7/16	27 7/16	14 13/16	9 3/4	4 1/2	6 3/8	9 3/4	5 9/16	2 3/4	3	1	13 1/2	4 1/4	4	3/4	227	249	257	279	16
7	26 1/8	12 3/8	30 3/8	16 5/8	11	5 1/2	7 1/4	11 1/2	6 1/4	3 3/8	4	1	14	4 5/8	4	3/4	305	331	359	385	18
8	26 5/8	12 5/8	31	17	11 3/4	6	6 1/8	10 1/2	6 1/2	3 7/8	4	1	15 1/2	4 7/8	4	7/8	392	421	458	487	22
10	28 5/16	12 15/16	33	17 5/8	13	7	6 3/16	10 7/8	6 3/4	4 7/8	4	1	17 7/8	5 3/4	6	7/8	592	626	671	705	29
12	30 3/16	13 5/8	35 5/16	18 3/4	14 1/2	9	6 7/8	12	7 1/4	6	4	1	20 3/4	6 1/8	6	1	767	807	857	897	39
14	30 5/8	14	35 1/2	18 7/8	16 1/2	9	7	11 7/8	7 3/8	6 3/8	4	1 1/4	22 1/2	6 5/16	6	1	1056	1103	1186	1233	54
15	31 3/8	14 1/4	37 15/16	20 13/16	17	11 1/2	7 3/8	13 15/16	8 13/16	6 7/8	5	1 1/4	24 1/2	6 5/8	6	1 1/8					
16	31 15/16	14 1/4	38 1/2	20 13/16	17 7/8	12	7 1/4	13 13/16	8 13/16	7 1/2	5	1 1/4	25 3/4	6 3/4	6	1 1/8	1358	1414	1533	1589	70
18	33 9/16	15 1/4	40 1/8	21 13/16	19 3/8	13 1/2	7 5/8	14 3/16	9 1/16	8 1/4	5	1 1/2	28	7	8	1 1/8	1882	1950	2132	2200	89
20	34 5/16	15 1/2	42 15/16	24 1/8	20 3/4	14 3/4	7 3/4	16 3/8	10 1/2	9 5/8	7	1 1/2	30 1/4	7 1/2	8	1 1/4	2137	2223	2537	2622	113

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.
‡For each additional 2 in. of traverse, add 2 in. to Dim. E.
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Semi-Guided with Tie Rods

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

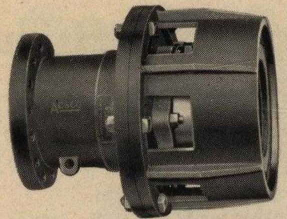
Dimensions and Weights for 4-in. Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D6T *A	No. D6T †B	No. D8T *A	No. D8T †B	C	D	H	Size of Service §I	Size of Drip J	K	L	No. of Tie Rods	Size of Tie Rods	Approx. Ship. Weights 4-in. Traverse D6T	D8T	Add for each add'nl 2 in. of traverse both slips
2	34 1/2	15	34 3/4	15 1/4	6	2	15/16	1 1/2	1/2	7	2 3/4	2	5/8	74	82	10
2 1/2	36 3/4	15	37 3/4	16	6 3/4	2 1/2	1 1/4	2	1/2	7 7/8	3 1/8	2	5/8	86	97	14
3	37 1/8	15	38 3/8	16 1/4	7 1/4	3	1 1/2	2	1/2	8 1/2	3 3/8	2	3/4	138	153	18
3 1/2	37 1/4	15	38 1/2	16 1/4	7 3/4	3 1/4	1 3/4	2	1/2	9	3 7/16	2	3/4	173	188	21
4	40 1/8	16	42	17 7/8	8 1/4	3 1/2	1 7/8	2 1/2	3/4	9 3/4	3 7/8	4	5/8	211	235	24
5	41 1/8	16	43 5/8	18 1/2	8 3/4	4	2 3/8	3	3/4	11	4 1/8	4	5/8	261	299	28
6	41 1/4	16	43 3/4	18 1/2	9 3/4	4 1/2	2 3/4	3	1	13 1/2	4 1/4	4	3/4	324	363	32
7	45 1/2	18	48 1/4	20 3/4	11	5 1/2	3 3/8	4	1	14	4 5/8	4	3/4	430	500	36
8	46	18	49	21	11 3/4	6	3 7/8	4	1	15 1/2	4 7/8	4	7/8	547	633	44
10	48 3/4	18	52 1/2	21 3/4	13	7	4 7/8	4	1	17 7/8	5 3/4	6	7/8	814	916	58
12	52 1/8	19	56 1/8	23	14 1/2	9	6	4	1	20 3/4	6 1/8	6	1	1049	1166	78
14	52 3/8	19 1/8	56 1/4	23	16 1/2	9	6 3/8	4	1 1/4	22 1/2	6 5/16	6	1	1434	1602	108
15	53 1/2	19 1/4	58 1/4	24	17	11 1/2	6 7/8	5	1 1/4	24 1/2	6 5/8	6	1 1/8			
16	54 5/8	19 1/4	59 3/8	24	17 7/8	12	7 1/2	5	1 1/4	25 3/4	6 3/4	6	1 1/8	1838	2066	140
18	57 5/8	21	62 1/8	25 1/2	19 3/8	13 1/2	8 1/4	5	1 1/2	28	7	8	1 1/8	2535	2860	178
20	58 5/8	21	64 7/8	27 1/4	20 3/4	14 3/4	9 5/8	7	1 1/2	30 1/4	7 1/2	8	1 1/4	2889	3408	226

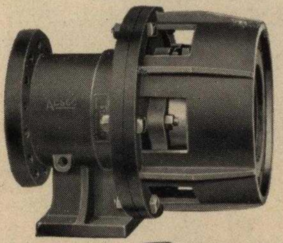
*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A.
†For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15-in. and larger joints are flanged.

Single Slip Externally-Guided



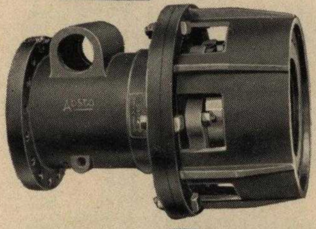
No. S5G

Adsco 250-lb. Single Externally-Guided Expansion Joint. No anchor, no service.



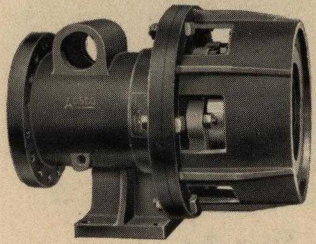
No. S6G

Adsco 250-lb. Single Externally-Guided Expansion Joint. With anchor, no service.



No. S7G

Adsco 250-lb. Single Externally-Guided Expansion Joint. With service, no anchor.



No. S8G

Adsco 250-lb. Single Externally-Guided Expansion Joint. With anchor, with service.

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins.

Specifications: Cast-iron body, brass slip, flanges faced and drilled A.S.M.E. Standard for 250 pounds pressure, for steam, water, air and gas. Can be furnished with steel slips for oil service.

If other than brass slips with flanges screwed on are desired, see page 30.

For steel body joints with beveled ends for welding, see page 30.

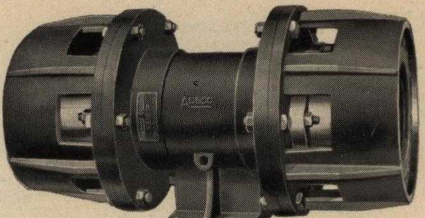
For detailed description of externally-guided joints, see page 10.

List Prices

Size	4-in. Traverse				Add for each additional 2 in. of traverse
	No. S5G	No. S6G	No. S7G	No. S8G	
2	$ 49.60	$ 53.50	$ 53.30	$ 57.20	$ 5.20
2½	57.50	61.60	61.10	65.30	6.60
3	66.80	71.20	70.50	75.00	8.60
3½	72.80	77.40	80.20	84.80	9.40
4	83.60	88.20	91.00	95.60	10.10
5	111.70	116.70	119.10	124.20	11.10
6	125.90	131.70	140.70	146.50	12.60
8	195.10	202.70	210.00	217.60	22.90
10	279.10	287.90	294.00	302.70	28.70
12	376.70	386.70	391.50	401.60	36.80
14	665.00	677.00	702.10	714.00	47.60
16	799.80	814.40	837.00	851.40	57.20
18	982.00	999.50	1047.50	1065.00	72.60
20	1114.00	1135.70	1217.80	1239.40	82.00

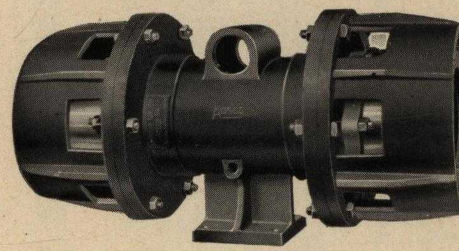
These prices do not include packing; see page 5.
Cost of tapping for drip, quoted in current discount sheet.
Prices on steel joints on application.

Double Slip Externally-Guided



No. D6G

Adsco 250-lb. Double Externally-Guided Expansion Joint. With anchor, no service.



No. D8G

Adsco 250-lb. Double Externally-Guided Expansion Joint. With anchor, with service.

250 Pounds Working Steam Pressure

Traverse, 4, 6, 8, 10 and 12 ins. Per Slip

The Double Slip Adsco Externally-Guided Expansion Joint allows for expansion on either side of its service connections or anchor point.

All double expansion joints should be rigidly anchored, and while we can furnish this joint without anchor, we do not recommend it.

When ordering, specify by number the joint required. Also indicate the amount of traverse desired. State if joint is to be tapped for drip. All joints are furnished unpacked unless otherwise ordered.

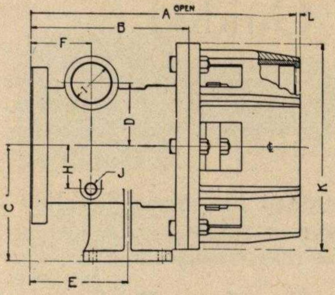
List Prices

Size	4-in. Traverse		Add for each additional 2 in. of traverse both slips
	No. D6G	No. D8G	
2	$ 104.60	$ 108.50	$ 10.00
2½	124.70	128.50	12.70
3	138.80	142.70	16.50
3½	156.80	164.50	18.00
4	187.20	194.80	19.40
5	238.80	246.50	21.30
6	284.40	299.80	24.10
8	408.20	422.40	40.00
10	599.00	614.40	54.90
12	789.20	804.50	70.40
14	1102.00	1140.50	91.20
16	1452.50	1491.00	109.50
18	1626.70	1680.60	138.90
20	2058.70	2120.30	156.80

These prices do not include packing; see page 5.

Cost of tapping for drip, quoted in current discount sheet.

Prices on steel joints on application.



Single Slip Externally-Guided

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

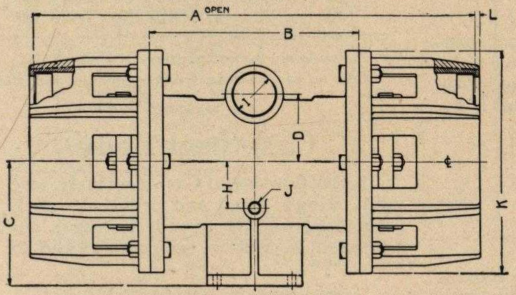
When joint is furnished with service outlets and drip connection, the two openings are in the same vertical center line. On the other joints, the drip tapping is located about midway between the center of anchor base and inside of body flange.

Dimensions and Weights for 4-in. Traverse

For longer traverse, see footnotes

Size of Joint	No. S5G No. S6G		No. S7G No. S8G				No.S6G	No.S8G			Size of Service	Size of Drip			Approximate Shipping Weights				
	*A	†B	*A	†B	C	D	‡E	‡E	F	H	§I	J	K	L	S5G	S6G	S7G	S8G	Add for each add'nl 2 in. of traverse
2	18	9⅝	18⅞	10½	6	2	6¼	7⅛	3½	15/16	1½	½	10¾	5/16	109	122	116	129	14
2½	18 15/16	9¾	21⅛	11 15/16	6¾	2½	6¼	8 7/16	3 15/16	1¼	2	½	11⅞	⅜	140	156	148	164	18
3	19¼	10	21⅜	12⅛	7¼	3	5⅞	8	4⅛	1½	2	½	12½	7/16	202	219	214	231	24
3½	19⅜	10 1/16	21½	12 3/16	7¾	3¼	5 15/16	8 1/16	4 3/16	1¾	2	½	13¼	7/16	238	255	250	267	26
4	20 13/16	10⅞	23⅝	13 11/16	8¼	3½	6⅜	9 3/16	4¾	1⅞	2½	¾	14½	7/16	274	292	293	311	28
5	21 5/16	11	25	14 11/16	8¾	4	6	9 11/16	5 7/16	2⅜	3	¾	15 9/16	7/16	320	340	347	367	32
6	21 13/16	11 7/16	25 3/16	14 13/16	9¾	4½	6⅜	9¾	5 9/16	2¾	3	1	17⅝	9/16	392	414	423	445	38
7	23 9/16	12⅜	27 13/16	16⅝	11	5½	7¼	11½	6¼	3⅜	4	1	19⅞	9/16	478	504	532	558	44
8	23 15/16	12⅝	28 5/16	17	11¾	6	6⅛	10½	6½	3⅞	4	1	20⅞	9/16	566	595	632	661	52
10	24 15/16	12 15/16	29⅝	17⅝	13	7	6 3/16	10⅞	6¾	4⅞	4	1	23¼	9/16	822	856	901	935	72
12	26⅝	13⅝	31¾	18¾	14½	9	6⅞	12	7¼	6	4	1	26⅜	11/16	1058	1098	1148	1188	100
14	27⅛	14	32	18⅞	16½	9	7	11⅞	7⅜	6⅜	4	1¼	28⅞	11/16	1367	1400	1497	1530	130
15	27⅝	14¼	34 3/16	20 13/16	17	11½	7⅜	13 15/16	8 13/16	6⅞	5	1¼	30⅜	11/16					
16	28 1/16	14¼	34⅝	20 13/16	17⅞	12	7¼	13 13/16	8 13/16	7½	5	1¼	31⅞	13/16	1704	1760	1879	1935	162
18	29⅝	15¼	36 3/16	21 13/16	19⅜	13½	7⅝	14 3/16	9 1/16	8¼	5	1½	34⅜	13/16	2249	2317	2499	2567	199
20	30 1/16	15½	38 11/16	24⅛	20¾	14¾	7¾	16⅜	10½	9⅝	7	1½	37	15/16	2597	2682	2997	3082	240

*For each additional 2 in. of traverse, add 4 in. to Dim. A.
†For each additional 2 in. of traverse, add 2 in. to Dim. B.
‡For each additional 2 in. of traverse, add 2 in. to Dim. E
§Service outlets on 15-in. and larger joints are flanged.



Double Slip Externally-Guided

250 Pounds Working Steam Pressure

Dimensions of anchor base and flanges are given on page 31.

If joint is furnished with VanStone flange, add thickness of VanStone to the face-to-face dimension.

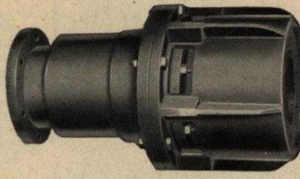
Dimensions and Weights for 4-in. Traverse each slip

For longer traverse, see footnotes

Size of Joint	No. D6G		No. D8G					Size of Service	Size of Drip			Approximate Shipping Weights		
	*A	†B	*A	†B	C	D	H	§I	J	K	L	D6G	D8G	Add for each add'nl 2 in. of traverse both slips
2	31¾	15	32	15¼	6	2	15/16	1½	½	10¾	5/16	159	168	28
2½	33⅜	15	34⅜	16	6¾	2½	1¼	2	½	11⅞	⅜	203	213	36
3	33½	15	34¾	16¼	7¼	3	1½	2	½	12½	7/16	285	300	48
3½	33⅝	15	34⅞	16¼	7¾	3¼	1¾	2	½	13¼	7/16	333	348	52
4	35⅞	16	37¾	17⅞	8¼	3½	1⅞	2½	¾	14½	7/16	380	404	56
5	36⅝	16	39⅛	18½	8¾	4	2⅜	3	¾	15 9/16	7/16	442	477	64
6	36¾	16	39¼	18½	9¾	4½	2¾	3	1	17⅝	9/16	538	578	76
7	40⅜	18	43⅛	20¾	11	5½	3⅜	4	1	19⅞	9/16	655	725	88
8	40⅝	18	43⅝	21	11¾	6	3⅞	4	1	20⅞	9/16	773	859	104
10	42	18	45¾	21¾	13	7	4⅞	4	1	23¼	9/16	1113	1215	144
12	45	19	49	23	14½	9	6	4	1	26⅜	11/16	1427	1544	200
14	45⅜	19⅛	49¼	23	16½	9	6⅜	4	1¼	28⅞	11/16	1820	1989	260
15	46	19¼	50¾	24	17	11½	6⅞	5	1¼	30⅜	11/16			
16	46⅞	19¼	51⅝	24	17⅞	12	7½	5	1¼	31⅞	13/16	2288	2515	324
18	49¾	21	54¼	25½	19⅜	13½	8¼	5	1½	34⅜	13/16	3012	3337	398
20	50⅛	21	56⅜	27¼	20¾	14¾	9⅝	7	1½	37	15/16	3487	4007	480

*For each additional 2 in. of traverse on both slips, add 8 in. to Dim. A.
†For each additional 2 in. of traverse on both slips, add 4 in. to Dim. B.
§Service outlets on 15-in. and larger joints are flanged.

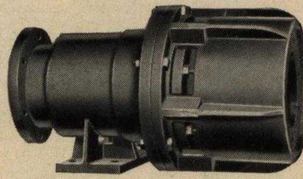
Duplex-Sleeve Guided



No. L-9

Adsco Duplex-Sleeve Guided Expansion Joint without anchor. Cast-iron or steel body.

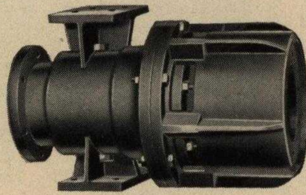
No. L-9 As shown
No. L-9-8 Slip end beveled
No. L-9-9 Both ends beveled



No. L-10

Adsco Duplex-Sleeve Guided Expansion Joint with bottom anchor. Cast-iron or steel body.

No. L-10 As shown
No. L-10-8 Slip end beveled
No. L-10-9 Both ends beveled

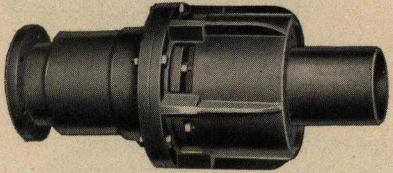


No. L-11

Adsco Duplex-Sleeve Guided Expansion Joint with two anchors. Cast-iron or steel body.

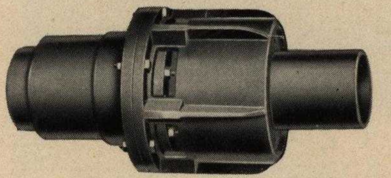
No. L-11 As shown
No. L-11-8 Slip end beveled
No. L-11-9 Both ends beveled

The illustrations below show the combinations that can be furnished on any of the above joints. When ordering, please specify by number the type of joint desired, stating whether to be furnished with cast-iron or cast-steel body and also the amount of traverse required.



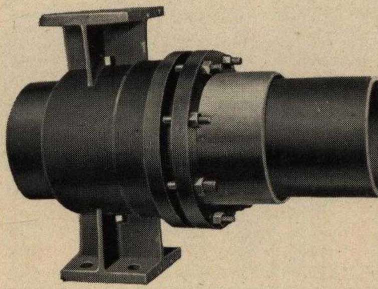
Adsco Duplex-Sleeve Guided Expansion Joint with slip end beveled for welding and body end flanged. This joint can be furnished with cast-iron or steel body.

Prices on application



Adsco Duplex-Sleeve Guided Expansion Joint with both ends beveled for welding. This joint is furnished with cast-steel body, only.

Prices on application



Adsco Duplex-Sleeve Expansion Joint without guide, and both ends beveled for welding.

Prices on application

All joints are furnished unpacked unless otherwise ordered. See page 5.

With cast-iron body for 250 pounds working steam pressure, saturated steam.

With cast-steel body for higher pressure and superheat.

Standard Traverse, 8 inches

can also be furnished with 4-in. or 12-in. traverse. Prices on application.

Cast-Iron Body

Specifications: Cast-iron body, steel slip, flanges faced and drilled A.S.M.E. Standard for 250 pounds pressure. For detailed description, see pages 12 and 13.

List Prices—8-inch Traverse

Size	L-9	L-10	L-11
2	104.40	110.40	117.00
2½	125.00	131.00	137.60
3	125.00	131.00	137.60
3½	157.60	165.60	174.40
4	157.60	165.60	174.40
5	183.60	191.60	200.40
6	212.00	220.00	238.80
8	312.40	320.40	329.20
10	473.00	483.00	494.00
12	629.20	641.20	654.40
14	885.20	901.20	918.80
16	1315.60	1335.60	1357.60
18	1540.00	1570.00	1603.00
20	1793.00	1823.00	1856.00

Prices do not include packing—see page 5.

Price on 4-in. and 8-in. traverse joints on application.

Cast-Steel Body

Specifications: Cast-steel body, steel slip, flanges faced and drilled A.S.M.E. Standard for 250 pounds pressure. For detailed description, see pages 12 and 13.

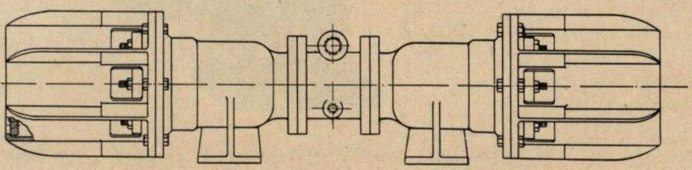
List Prices—8-inch Traverse

Size	L-9	L-10	L-11
2	149.40	157.40	166.20
2½	175.00	183.00	191.80
3	175.00	183.00	191.80
3½	209.60	219.60	230.60
4	209.60	219.60	230.60
5	247.00	257.00	268.00
6	281.60	291.60	302.60
8	398.00	408.00	419.00
10	585.20	597.60	611.20
12	833.20	848.20	864.70
14	1129.20	1149.20	1171.20
16	1616.00	1646.00	1679.00
18	1880.00	1920.00	1964.00
20	2212.00	2252.00	2269.00

Prices do not include packing—see page 5.

Price on 4-in. and 12-in. traverse joints on application.

ADSCO Duplex-Sleeve Expansion Joints are not furnished in the double-slip type. If double joints are required, two single joints are bolted together as shown in the above illustration. At least one of the joints should have an anchor base, so that it may be rigidly anchored to assure equal movement on each slip.

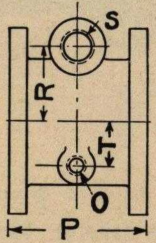


When service outlets are required on either single or double duplex-sleeve joints, we can furnish a special service fitting in either cast iron or cast steel. This service fitting is bolted to the body end of a single joint, or between two single joints, and provides both service outlets and drip connections.

It is recommended where this service fitting is used to make a double joint, that both joints be supplied with an anchor base; one to be firmly anchored and the other resting on a foundation to support the joint, yet allowing slight movement, so that no strain or break will occur due to the expansion of metal between the two anchor bases.

Service Fitting for Duplex-Sleeve Guided Joints

This service fitting can be furnished with either cast iron or cast steel body. It is designed for 250 pounds working steam pressure. Faced and drilled A.S.M.E. Standard for 250 pounds.



Size	O	P	R	S	T
2	½	7	2	1½	15/16
2½	½	7⅞	2½	2	1¼
3	½	8¼	3	2	1½
3½	¾	8¾	3	2	1¾
4	¾	9½	3½	2½	1⅞
5	¾	10⅜	4	3	2⅜
6	1	10½	4½	3	2⅜
8	1	13	6	4	3⅞
10	1	13½	7	4	4⅞
12	1	14½	9	4	6
14	1¼	14¾	9	4	6⅜
16	1¼	17⅝	12	5*	7½
18	1½	18⅛	13½	5*	8¼
20	1½	21	14¾	7*	9⅝

Prices on application.

Note: Sizes larger than 14 ins. have flanged services.

☞ It has two horizontal outlets for service connections. Also furnished with bosses on each side for drip tappings.

When ordering, always specify whether it is to be of cast iron or cast steel; also if to be tapped for drip.

The steel fitting can also be furnished with ends beveled for welding to steel body joints.

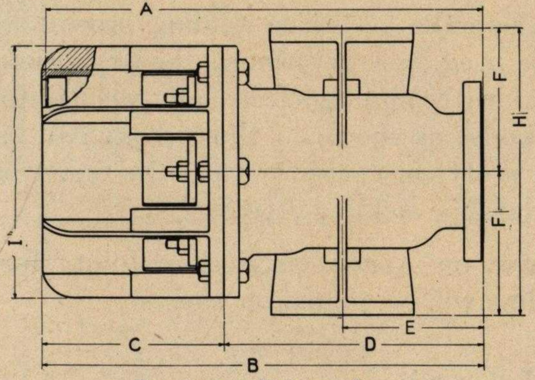


DIAGRAM OF FLANGED JOINT

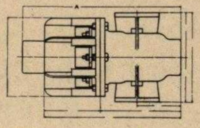


DIAGRAM OF BEVELED END JOINT

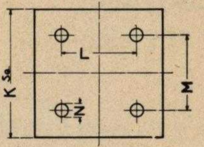


DIAGRAM OF BASE

Duplex-Sleeve Guided

250 Pounds Working Steam Pressure

Dimensions of joints for welding remain the same as those of flanged joints, except face-to-face length.

Dimensions and Weights for 8-inch Traverse

For other traverse, see footnotes

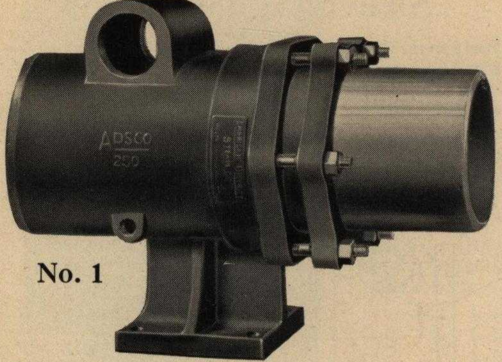
Size	Flanged Ends *A	Both Ends Beveled *A	*B	†C	†D	‡E	F	H	I	K	L	M	N	Approximate Shipping Weight L-9	L-10	L-11
2	30 13/16	36 13/16	31¼	14⅝	16⅝	8¾	8⅛	16¼	12	7	5	4	¾	235	250	265
2½	31 15/16	37 15/16	32½	15⅛	17⅜	9	8 9/16	17⅛	12⅞	7	5	4	¾	285	300	315
3	33 9/16	39 9/16	34	16⅜	17⅝	9¼	9	18	13¾	8	5	4	⅞	310	330	350
3½	32 11/16	38 11/16	33⅛	15⅛	18	9½	9	18	14½	8	5	4	⅞	370	390	410
4	32 15/16	38	33⅜	15¼	18⅛	9¾	9	18	15⅝	8	5	4	⅞	410	430	450
5	34 13/16	40¾	35¼	16⅜	18⅞	10	9	18	16½	8	5	4	⅞	490	515	540
6	34 1/16	40 1/16	34½	15⅜	19⅛	10¼	10	20	18⅞	8	5	4	⅞	610	640	670
8	37	43	37 7/16	15 13/16	21⅝	11¾	12	24	21⅛	12	7	7	1⅛	880	910	940
10	38 13/16	44 13/16	39⅜	17½	21⅞	11⅛	13	26	23½	12	7	7	1⅛	1270	1305	1340
12	42⅜	48¾	43	19⅛	23⅞	12¼	15	30	27½	12	7	7	1⅛	1620	1655	1690
14	40⅛	45¾	40 13/16	18 7/16	22⅜	11½	16	32	29⅞	12	7	7	1⅛	1990	2030	2070
16	39 11/16	45½	40⅜	18 5/16	22 1/16	11¼	16½	33	32¼	12	7	7	1⅛	2340	2380	2420
18	41 13/16	47 1/16	42⅝	18¼	24⅜	12	17	34	35	12	7	7	1⅛	3550	3595	3640
20	42¼	47½	43 1/16	18½	24 9/16	12¾	17½	35	37¾	12	9	6½	1¼	3050	3095	3140

*For 4-in. traverse joints subtract 8 inches from dimensions A and B. For 12-in. traverse add 8 inches to dimensions A and B.

†For 4-in. traverse joints subtract 4 inches from dimensions C and D. For 12-in. traverse add 4 inches to dimensions C and D

‡For 12-in. traverse joints add 4 inches to dimension E. The base on 4-in. traverse joints is of special design, and dimensions will be furnished on definite specifications.

For Electric-Arc Welding



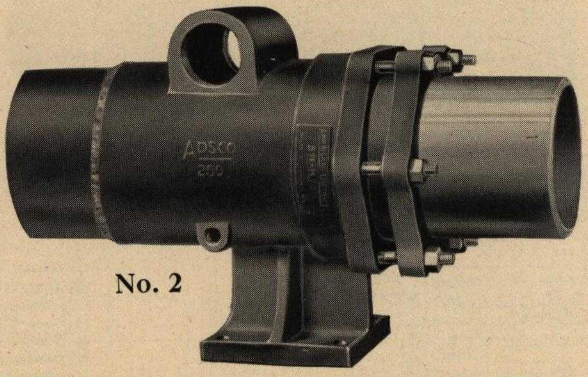
No. 1

Because of the use of higher pressures, completely welded construction throughout the pipe line is frequently desirable. This requires the welding of the expansion joints into the pipe line.

For this purpose, we can furnish ADSCO Expansion Joints with cast-steel body, having body and sleeve ends beveled for welding.

Illustration No. 1 shows the body and sleeve beveled for welding directly into the pipe line. This type should be used only where the weld is to be made by the electric-arc process.

For Acetylene Welding



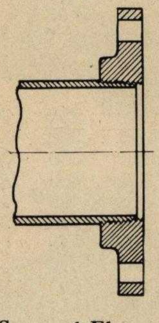
No. 2

While an acetylene weld direct to the body is possible, there is danger that the heat absorption by the body metal may cause distortion. Besides, the difference in thickness of the body and pipe retards the welding.

Where the acetylene welding process is to be used, we can furnish the expansion joints with nipples electrically-welded to the body, as shown in Illustration No. 2. The acetylene welding then becomes a regular pipe welding process.

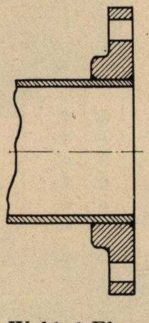
Price on ADSCO Expansion Joints for welding will be quoted on request.

ADSCO Expansion Joint Slips



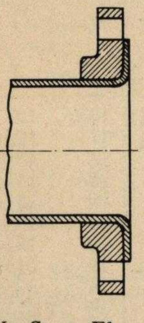
Screwed Flange

Brass Slip with Flange screwed on. This type of slip is furnished unless otherwise ordered on all flanged expansion joints except on the duplex-sleeve type.



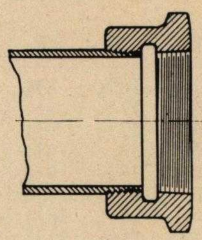
Welded Flange

Steel slip with steel flange welded on can be furnished on all expansion joints. Prices on application.



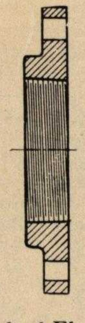
VanStone Flange

TheVanStone Flange can be furnished on steel slips on all flanged expansion joints. Prices quoted on application.



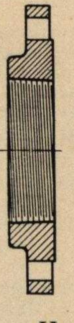
Screwed Hub

Screwed end expansion joints can be furnished when so noted under price lists.



Standard Flange

The standard (125-lb. pressure) flange with flat face is furnished faced and drilled according to A.S.M.E. Standard for 125 pounds pressure.



Extra Heavy Flange

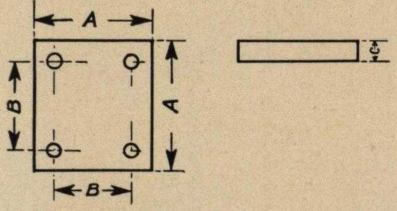
The extra-heavy (250-lb. pressure) flange has raised face and is furnished faced and drilled according to A.S.M.E. Standard for 250 pounds pressure.

Dimensions and Drilling of Flanges and Anchor Bases

Dimensions of Standard and Extra Heavy Companion Flanges

Standard (125 pounds) Pressure						Extra Heavy (250 pounds) Pressure					
Size Inches	Diam. of Flange Inches	Thick. of Flange Inches	Bolt Circle Inches	No. of Bolts	Size of Bolt Inches	Size Inches	Diam. of Flange Inches	*Thick. of Flange Inches	Bolt Circle Inches	No. of Bolts	Size of Bolt Inches
1	4	7/16	3	4	7/16x1½	**1**	4½	11/16	3¼	4	½x2
1¼	4½	½	3⅜	4	7/16x1½	**1¼**	5	¾	3¾	4	½x2¼
1½	5	9/16	3⅞	4	½x1¾	**1½**	6	13/16	4½	4	⅝x2½
2	6	⅝	4¾	4	⅝x2	**2**	6½	⅞	5	4	⅝x2½
2½	7	11/16	5½	4	⅝x2¼	**2½**	7½	1	5⅞	4	¾x3
3	7½	¾	6	4	⅝x2¼	**3**	8¼	1⅛	6⅝	8	¾x3¼
3½	8½	13/16	7	4	⅝x2½	**3½**	9	1 3/16	7¼	8	¾x3¼
4	9	15/16	7½	8	⅝x2¾	**4**	10	1¼	7⅞	8	¾x3½
4½	9¼	15/16	7¾	8	¾x2¾	**4½**	10½	1 5/16	8½	8	¾x3½
5	10	15/16	8½	8	¾x2¾	**5**	11	1⅜	9¼	8	¾x3¾
6	11	1	9½	8	¾x3	**6**	12½	1 7/16	10⅝	12	¾x3¾
7	12½	1 1/16	10¾	8	¾x3	**7**	14	1½	11⅞	12	⅞x4
8	13½	1⅛	11¾	8	¾x3¼	**8**	15	1⅝	13	12	⅞x4¼
9	15	1⅛	13¼	12	¾x3¼	**9**	16¼	1¾	14	12	1 x4¾
10	16	1 3/16	14¼	12	⅞x3½	**10**	17½	1⅞	15¼	16	1 x5
12	19	1¼	17	12	⅞x3½	**12**	20½	2	17¾	16	1⅛x5¼
14	21	1⅜	18¾	12	1 x4	**14**	23	2⅛	20¼	20	1⅛x5½
15	22¼	1⅜	20	16	1 x4	**15**	24½	2 3/16	21½	20	1¼x5¾
16	23½	1 7/16	21¼	16	1 x4	**16**	25½	2¼	22½	20	1¼x6
18	25	1 9/16	22¾	16	1⅛x4½	**18**	28	2⅜	24¾	24	1¼x6¼
20	27½	1 11/16	25	20	1⅛x4¾	**20**	30½	2½	27	24	1⅜x6½
22	29½	1 13/16	27¼	20	1¼x5	**22**	33	2⅝	29¼	24	1½x7
24	32	1⅞	29½	20	1¼x5¼	**24**	36	2¾	32	24	1⅝x7½

Bolt holes are drilled ⅛ in. larger than nominal diameter of bolts.
*1/16-in. raised face included in this dimension.

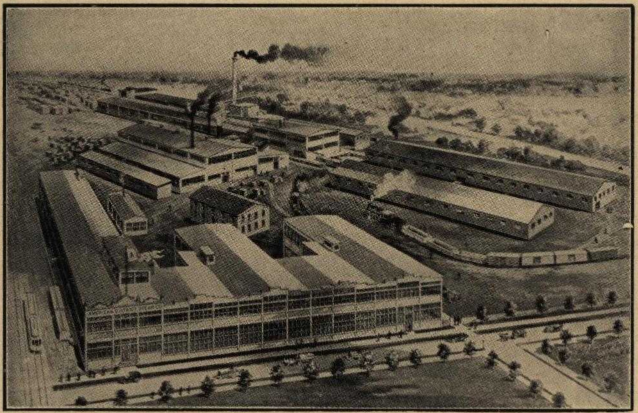


Dimensions of Anchor Bases

The dimensions given below are for anchor bases of all Adsco Slip-Type Expansion Joints except the duplex-sleeve type for which dimensions are given on page 29.

For Standard (125 pounds) Pressure Joints										For Extra Heavy (250 pounds) Pressure Joints									
Size	A	B	C	Size of Holes	Size	A	B	C	Size of Holes	Size	A	B	C	Size of Holes	Size	A	B	C	Size of Holes
2	4½	3⅜	½	½	**8**	9	7½	15/16	¾	**2**	5	3¾	¾	⅝	**8**	10	7⅞	1¼	⅞
2½	4½	3⅜	½	½	**10**	9	7½	15/16	¾	**2½**	5	3¾	¾	⅝	**10**	10	7⅞	1¼	⅞
3	5	3⅞	9/16	⅝	**12**	11	9½	1	⅞	**3**	6	4½	13/16	¾	**12**	12½	10⅝	1 7/16	⅞
3½	5	3⅞	9/16	⅝	**14**	11	9½	1	⅞	**3½**	6	4½	13/16	¾	**14**	12½	10⅝	1 7/16	⅞
4	6	4¾	⅝	¾	**15**	11	9½	1	⅞	**4**	6½	5	⅞	¾	**15**	12½	10⅝	1 7/16	⅞
5	7	5½	11/16	¾	**16**	11	9½	1	⅞	**5**	7½	5⅞	1	⅞	**16**	12½	10⅝	1 7/16	⅞
6	7	5½	11/16	¾	**18**	13½	11¾	1⅛	⅞	**6**	7½	5⅞	1	⅞	**18**	15	13	1⅝	1
7	7	5½	11/16	¾	**20**	13½	11¾	1⅛	⅞	**7**	7½	5⅞	1	⅞	**20**	15	13	1⅝	1

All anchor bases have four drilled holes equally spaced from center line of the base.
All dimensions are given in inches.



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